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ABSTRACT

Introduction: The Attempted Suicude Short Intervention Program (ASSIP) provides an effective and cost-effective treatment option for people who have attempted suicide. Studies suggest that longer treatment latency is associated with poorer response to therapy, more severe symptomatology, and more suicide attempts This study examined the influence of treatment latency (time between suicide attempt and initiation of therapy) on the number of suicide attempts over the long-term course of ASSIP and the influence of treatment relationship on the extent of suicidal ideation.

Method: Survival and regression analyses were performed on 60 participants who had recently attempted suicide and received ASSIP at an outpatient psychiatric clinic. 60% were women and 40% were men.

Results: The results found no significant association between treatment outcome in ASSIP and treatment latency (HR = 1.06; 95% CI: 0.92- 1.21, $p = .44$). Treatment relationship significantly influenced suicidal ideation at time t_4 (B = − .35, t(55) = −3.21, $p = .002$), but treatment latency was not significantly associated with suicidal ideation (B = .02, t(55) = 0.87, $p = .39$).

Conclusion: No relationship between treatment latency and treatment outcome could be found, suggesting that ASSIP can be implemented at any time after the last suicide attempt. In contrast, the treatment relationship plays a central role in ASSIP.

KEYWORDS

ASSIP; brief therapy; suicidal ideation; suicide attempt; suicide prevention; treatment latency; treatment relationship

INTRODUCTION

Every year, about 700,000 people die by suicide worldwide (WHO, 2019). For each suicide, there are more than 20 attempts (WHO, 2020). The care of a person after a suicide attempt is crucial (Ramsay & Newman, 2005), as a suicide attempt significantly increases the risk of death by suicide (Franklin et al., 2017; Probert-Lindström et al., 2020), so follow-up treatments are of decisive importance (Gysin-Maillart & Michel, 2013).

There is increasing interest in research on the duration of untreated illness or "treatment latency"—the interval between the onset of an illness and the receipt of adequate treatment (Altamura, Buoli, et al., 2010). Studies suggest that longer treatment latency is associated with poorer response to therapy, more severe symptoms, more

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

suicide attempts, and more frequent rehospitalisation (Dell'Osso et al., 2013; Ghio, Gotelli, et al., 2014). While research on treatment latency has long been limited to therapy with psychotropic drugs, it is also important to investigate the treatment latency of psychotherapy (Dell'Osso, Camuri, et al., 2013). A study on schizophrenia concluded that the timing of psychotherapy is more relevant for treatment outcomes than is the initiation of drug treatment (de Haan, Linszen, et al., 2003). This highlights the importance of research on the treatment latency of psychotherapy.

There have been few studies on treatment latency in therapy after a suicide attempt. According to Gysin-Maillart and Michel (2013), a suicide attempt should be understood as an act rather than an illness. While according to the definition of treatment latency (Altamura, Buoli, et al., 2010), the occurrence of an illness marks the beginning of the period, an event, such as a suicide attempt, can also serve as a starting point. The Teachable Moment Brief Intervention (TMBI, O'Connor et al., 2015; O'Connor et al., 2020) makes use of this concept. Evaluation of the intervention showed that motivation and treatment adherence were slightly enhanced in follow-up treatments compared to a control group (O'Connor et al., 2020). However, the result can be interpreted to mean that prompt intervention after a suicide attempt may favorably influence treatment outcomes (O'Connor et al., 2020).

Besides these studies using TMBI treatment, there has been little research on treatment latency following a suicide attempt. As there have been promising results in the therapy for other mental disorders and bearing in mind that a suicide attempt is a clearly defined event that lends itself to studies on the interval to therapy initiation, this is a significant area of research and possibly of practical importance. Accordingly, the present study investigates how the therapeutic outcome after an attempted suicide is related to treatment latency for psychotherapy.

One difficulty in studying suicide attempts as an outcome variable is the rarity of this event, which poses statistical challenges. Moreover, the study also includes suicidal ideation as a dependent variable. It is then possible to compare different suicide-specific outcome variables and to obtain a more complete picture of the patient.

Metanalyses have examined the effectiveness of different interventions (e.g., Brown et al., 2005; Calati & Courtet, 2016; Hofstra et al., 2020; Mann et al., 2005; McCabe et al., 2018; Meerwijk et al., 2016) and have concluded that psychotherapy is fundamentally effective in treating suicidal individuals. The Attempted Suicude Short Intervention Program (ASSIP) is a suicide-specific brief therapy. In a randomized controlled trial, this program significantly reduced the number of suicide attempts up to 24 months within the long-term course so this is an effective treatment option.

In the treatment of suicidal patients, the therapy relationship is of crucial importance (Michel, 2011), but there has been little research on how the therapeutic relationship affects the outcome of the therapy of suicidal patients—in comparison to other areas of psychotherapy research (Dunster-Page et al., 2017). In a meta-analysis, it was concluded that the therapeutic relationship is related to therapy outcomes for suicidal patients, but the strength of the relationship depends on whether suicidal ideation, self-injurious behavior, or suicide attempts are examined (Dunster-Page et al., 2017). In the domain of suicidal ideation, robust results are available that show that a good treatment relationship is related to fewer suicidal ideations (Gysin-Maillart, Schwab, et al., 2016; Gysin-Maillart,

Soravia, et al., 2017;; Ilgen et al., 2009; Perron et al., 2009; Ring et al., 2019; Ring & Gysin-Maillart, 2020; Turner, 2000). In the area of suicide attempts, data are sparse, but preliminary findings suggest that a good therapeutic relationship may be associated with less suicidal behavior (Farrelly et al., 2014). Since there is still a need for research on the impact of the therapy relationship on suicide attempts and suicidal ideation, this will be examined as a moderator in this report. This study aims to investigate the relationship between treatment latency, therapy relationship, and therapy outcome as measured by suicide attempts, and suicidal ideation over the long-term course of ASSIP.

METHODS

Data were taken from the randomized and controlled study to evaluate ASSIP (see Gysin-Maillart, Schwab, et al., 2016). Individuals with a life history of a suicide attempt were included. Individuals with severe cognitive impairment, psychotic symptoms, and individuals with poor German language skills were excluded. While individuals in the control group were invited to a structured interview, the intervention group completed the ASSIP intervention. In this paper, only the ASSIP group will be analyzed, and therefore only the ASSIP group will be discussed. Individuals in the ASSIP group completed a battery of questionnaires, consisting of measures of sociodemographic and clinical data as well as suicidal ideation and suicide attempts during the first therapy session. The quality of the therapy relationship was assessed after the first and third therapy sessions. These surveys represent the baseline (t_1). After 6 months (t_2), after 12 months (t_3), after 18 months (t_4), and after 24 months (t_5), the questionnaires on suicidal thoughts and suicide attempts were completed again.

Ethical Considerations

The study was approved by the Cantonal Ethics Committee of Bern (CEC application no.: 144/08) and registered as a study protocol at ClinicalTrials.gov (NCT02505373).

ASSIP Therapy

ASSIP consists of three therapy sessions, which are offered in addition to ongoing therapy. The goal of the brief therapy is to better understand suicidal crises and thus develop effective strategies to interrupt them. In the first session, a narrative interview (Michel & Valach, 2011) is conducted and videotaped. In the second session, the patient and therapist watch the recorded narrative interview together to identify and thus deepen their understanding of relevant life themes related to suicidal crises. In the third session, this summary of the suicidal background is jointly revised and supplemented, and safety strategies are developed. After the three sessions, patients receive semi-standardised letters for 24 months (Gysin-Maillart & Michel, 2013).

Participants

Sixty people were assigned to the ASSIP group. Of these, 36 (60%) were women and 24 (40%) men. Age varied from 14 to 77 years ($M = 36.52$, $SD = 14.25$). 67% of subjects

TABLE 1. Demographic and clinical characteristics of the ASSIP samples.

Sample characteristics	Total sample ($N = 60$)	Adjusted sample ($N = 55$)
Age, *M* (*SD*)	36.5 (14.3)	36.6 (14.2)
Gender, female/male	36/24	33/22
Married, *n* (%)	19 (32%)	18 (33%)
Children, *n* (%)	25 (42%)	23 (42%)
Employment, *n* (%)	34 (57%)	31 (56%)
Suicide attempt during follow-up, *n* (%)	5 (8%)	4 (7%)
Diagnoses, *n* (%)*		
F1	10 (17%)	8 (15%)
F3	40 (67%)	36 (66%)
F4	25 (42%)	24 (44%)
F6	8 (13%)	6 (11%)
Other	6 (10%)	6 (11%)

Note. F1= Mental and behavioral disorder due to psychotropic substances, F3 =.
Affective disorders, F4 = Neurotic, stress, and somatoform disorders, F6 =.
Personality and behavioral disorders.
*Multiple diagnoses possible.

had an affective disorder; 42% had a stress, neurotic, or somatoxic disorder; 17% had a psychotropic substance disorder; 13% had a personality disorder and 10% had other diagnosed disorders. Table 1 summarizes the sample characteristics. The characteristics just described can be seen in the first column ($N = 60$). The second column ($N = 55$) shows the characteristics of the subsample used for a partial analysis controlled for outliers (see Results section).

MEASURES

Treatment Latency

Treatment latency is operationalized by the length of time between the last suicide attempt and the initial ASSIP contact. For this purpose, the sum of days was calculated. Days were converted to weeks.

Therapeutic Relationship

To assess the therapeutic relationship, the participants completed the Penn Helping Alliance Questionnaire (HAq, Alexander & Luborsky, 1986). The German version of the questionnaire is a translation of Bassler et al. (1995) and consists of 11 items that are rated on a scale from 1 (very inapplicable) to 6 (very applicable). The instruction in the questionnaire asks individuals to rate their relationship with the therapist, as based on the statements listed. Assessments of the treatment relationship were collected after the first and third ASSIP sessions and averaged into one score for analysis.

Sociodemographic Questionnaire

Suicide attempts were investigated at each survey time point (6 months, 12 months, 18 months, and 24 months) for the past 6 months, using a battery of questionnaires developed for this purpose. This contained various demographic and health-related

questions. Suicide attempts were investigated as follows: "Have you attempted suicide in the past 6 months?" (Gysin-Maillart, Schwab, et al., 2016).

The expression of suicidal ideation was assessed using the Beck Scale for Suicide Ideation (BSS, Beck & Steer, 1991). The questionnaire contains 21 statement groups, for each of which one of three answers must be selected, and is scored with 0, 1, or 2 points, according to the severity. A higher score corresponds to more suicidal thoughts. The BSS is a self-report assessment instrument, which was performed at baseline and subsequently at four measurement points, for further information ASSIP see Gysin-Maillart, Schwab, et al., 2016. The patients are instructed to choose the statement that best describes how they felt during the past week. Statement groups include topics such as the desire to live or die and the duration or frequency of suicidal thoughts. Statement groups include topics such as desire to live or die and duration or frequency of suicidal thoughts. For example, the response options for the first statement group are "I have a moderate to strong desire to live." (0), "I have a rather weak desire to live." (1), "I have no desire to live." (2). Items 20 and 21, the last two items, ask about previous suicide attempts and are not included in the mean. The first five items represent screening questions. If item 4 indicates no desire to take one's own life (0) and item 5 indicates that one would attempt to save one's life in a life-threatening situation (0), the following 14 questions are skipped, and the last two items are processed directly. Only if suicidal thoughts (item 4) or a passive death wish (item 5) are present, all questions are processed. The score can range from 0 to 38.

Statistical Analyses

Cox regressions (Cox, 1972) were performed to test the association between shorter treatment latency, a better quality of the treatment relationship, and a lower risk of a suicide attempt. Preconditions underlying the proportional hazard model (Grambsch & Therneau, 1994) were checked beforehand and no significant associations were found between the time variable and the Schoenefeld residuals for treatment relationship ($\chi^2(1) = 1.04$, $p = 0.31$) and treatment latency ($\chi^2(1) = 0.83$, $p = 0.36$). It can therefore be assumed that the requirement for Cox regression is not violated. A separate Cox regression was performed for each research question, in order to minimize the risk of power reduction. According to the rule of thumb, at least 10 events should occur per predictor in Cox regressions. Although this assumption has been criticized (Vittinghoff & McCulloch, 2007), the two predictors are tested in separate models due to the small sample size. In this way, any power problems can be minimized.

To test whether a shorter treatment latency and better- therapy relationship were associated with fewer suicidal ideations, multiple linear regression analyses were performed for each survey time point over the long term (t_2-t_5). Five cases were identified as outliers according to different criteria and were therefore excluded from the analyses. For all further analyses, this new sample was used, whose sample characteristics are also shown in Table 1 in the column adjusted sample ($N = 55$). A series of sensitivity analyses were performed to check for potential differences depending on whether the outliers were included. No statistically significant differences were identified.

A post hoc power analysis based on a Cox regression and observed parameters (5 events out of 60, SD of latency of 4.58), was performed and indicated that it would be possible to detect an HR of 1.32 with a power of 80% at a two-sided alpha-level of 0.05.

Furthermore, the key assumptions of homoscedasticity and normal distribution of residuals (Casson & Farmer, 2014) were tested. The Breusch and Pagan test (1979) revealed that homoscedasticity was present at time t_2 ($\chi^2(2) = 5.42$, $p = .07$) and t_4 ($\chi^2(2) = 6.04$, $p = .05$). None of the residuals in any of the regression analyses was normally distributed, which is a violation of the prerequisites. However, in their simulation study, Knief and Forstmeier (2018) demonstrated that regression analyses are very robust to violation of the assumption of normal distribution of the residuals. When interpreting the results at t_3 and t_5, caution is required for these reasons. The interpretation of the regressions at t_2 and t_4 seems more reliable since the equality of variance of the residuals could be demonstrated. These are therefore described in the Results section.

To avoid bias, analyses were performed wherever possible with all subjects assigned to the ASSIP group, regardless of whether they participated in the study to the end (intention to treat, ITT). Missing data were replaced with the last value collected (last observation carried forward, LOCF). P values less than .05 were considered significant. All analyses were performed with the programs SPSS 26.0 and R Studio (version 1.2.5001).

RESULTS

Descriptive Data

The treatment relationship had a mean value of 5.1 (SD = 0.45). The mean treatment latency was 4.04 weeks (SD = 4.58). A total of five suicide attempts occurred during the long-term course. The mean sum value of suicide ideation measured by BSS was 7.32 (SD 8.41, range 27) at baseline, 5.75 (SD= 8.86, range 36) at 6 months, 4.60 (SD = 8.33, range 36) at 12 months, 4.52 (SD = 7.69, range 28) at 18 months, 2,86 (SD = 6.11, range 24) at 24 months. These values differ slightly from the data in Table 2, as they were calculated using the total sample ($N = 60$). All values from the adjusted sample ($N = 55$), are shown in Table 2. The dropout rate was 5% ($n = 3$).

Treatment Latency as a Predictor of Suicide Attempts

Treatment latency was not significantly associated with suicide attempts over the long term (HR = 1.06; 95% CI: 0.92–1.21, $p = .44$).

TABLE 2. Pearson correlations of the independent variables with suicidal ideation.

	M	*SD*	1	2	3	4	5	6
1. HAq	5.1	0.46	–					
2. Latenz	3.21	2.81	−.05	–				
3. BSS t2	0.28	0.42	−.42**	.08	–			
4. BSS t3	0.21	0.38	−.47**	.06	.77**	–		
5. BSS t4	0.23	0.4	−.41**	.13	.73**	.94**	–	
6. BSS t5	0.12	0.28	−.45**	.14	.66**	.84**	.81**	–

Note. Correlations of the adjusted sample (N = 55). HAq = Penn Helping Alliance Questionnaire, latency = treatment latency in weeks, BSS (item mean) t2 = suicidal ideation at 6 months, BSS t3 = suicidal ideation at 12 months, BSS t4 = suicidal ideation at 18 months, BSS t5 = suicidal ideation at 24 months.

**$p < .01$.

Treatment latency and treatment Relationship as Predictors of Suicidal Ideation

The association between variables was tested using the Pearson correlation. The results are shown in Table 2. While the treatment relationship showed a significant negative correlation with suicidal ideation at each time point, no significant correlation was found between treatment latency and suicidal ideation over the long-term course. Since no large bias is to be expected, multiple linear regression analyses were performed.

The regression analysis results showed that the two predictors together explained 18% of the variance in suicidal ideation at 6 months ($R^2 = .18$, F (2, 55) = 5.61, $p = .006$). This yields an $f^2 = 0.22$, which according to Cohen (1988) corresponds to a medium to large effect. While the treatment relationship significantly influenced suicidal ideation at time t_2 (B = −.38, t(55) = −3.29, $p = .002$), treatment latency not significantly associated with suicidal ideation (B = .01, t(55) = 0.47, $p = .64$). This means that at 6 months, the one unit increase in the treatment relationship was associated with a reduction of .38 scale points in suicidal ideation.

The results of the second regression analysis showed that the two predictors together explained 18% of the variance in suicidal ideation at 18 months ($R^2 = .18$, F(2, 55) = 5.69, $p = .006$). This yields an $f^2 = 0.22$, which according to Cohen (1988) corresponds to a medium to large effect. While the treatment relationship significantly influenced suicidal ideation at time t_4 (B = − .35, t(55) = −3.21, $p = .002$), treatment latency was not significantly associated with suicidal ideation (B = .02, t(55) = 0.87, $p = .39$). This means that at the 18-month time point, the one unit increase in treatment relationship was associated with a .35 scale point reduction in suicidal ideation.

DISCUSSION

The analysis showed that there was no significant association between treatment latency and suicidal behavior. The estimate is close to one and the confidence limit is narrow (HR = 1.06; 95% CI: 0.92–1.21), i.e., an increased risk of >21% per week can be excluded with quite some confidence.

This finding contrasts with the recommendation to initiate treatment as soon as possible after a suicide attempt (Hvid & Wang, 2009; Nordentoft & Sogaard, 2005). For example, Lizardi and Stanley (2010) emphasize that prompt treatment after a suicide attempt may strengthen the commitment to therapy. Commitment to treatment may be strengthened by ASSIP in other ways so that it does not depend on treatment latency. Techniques recommended to strengthen commitment include psychoeducation or sustained contact (Lizardi & Stanley, 2010) These are central components of ASSIP and might enhance commitment—independently of treatment latency. The result of the present study can be interpreted to mean that treatment latency, as it is in this sample, is not related to suicide attempts in the long-term course and that, accordingly, treatment outcome does not depend on when ASSIP is started.

Studies on anxiety and obsessive-compulsive disorders as well as depressive and psychotic disorders have shown that longer treatment latency is associated with poorer treatment outcomes (Dell'Osso, Camuri, et al., 2013; Ghio et al., 2014; Penttilä et al., 2014). These results contrast with the finding in the present study. This is surprising

since two studies did find an impact of treatment latency on suicide attempts (Altamura et al., 2007; Ghio et al., 2014). However, it is important to note that the average treatment latency of these disorders differs greatly from the treatment latency of the present study. For example, depressive, anxiety, or obsessive-compulsive disorders take between 3 and 7 years to receive adequate treatment (Altamura, Buoli, et al., 2010). Whereas in the present study, treatment latency was only in the range of weeks. This difference should not be underestimated and could explain the discrepancy found.

It is important to consider that suicidal acts are not understood as a disease (Gysin-Maillart & Michel, 2013). This is a relevant difference between the present study and the published studies that found an effect of treatment latency on treatment outcome. It is quite conceivable that the postulated modes of action of treatment latency apply to mental illness but are not transferable to suicidal acts. The finding that treatment latency was not related to treatment outcome can also be seen as an advantage of ASSIP, as the therapy seems to be effective regardless of the time of onset. As a next step, this study investigated the influence of shorter treatment latency on suicidal ideations, but this could not be confirmed. No association between treatment latency and a decrease in suicidal ideation was found at both the 6-month and 18-month time points in the long-term follow-up. The finding that treatment latency showed no association with suicidal ideation in ASSIP is inconsistent with findings in anxiety, obsessive-compulsive, depressive, and psychotic disorders, where longer treatment latency was associated with poorer response to therapy (Dell'Osso, Camuri, et al., 2013; Ghio et al., 2014; Penttilä et al., 2014).

A better therapy relationship was associated with a 69% lower risk for a suicide attempt in the long-term course. This finding underlines the assumption that the therapeutic relationship plays a central role in the treatment of suicidal patients (Michel, 2011) and confirms the assumed mechanism of action of the therapeutic relationship in ASSIP (Gysin-Maillart, Soravia, et al., 2017). Studies have shown that a better therapeutic relationship in men predicts that they are more likely to seek help for future problems such as suicidal ideation (Cusack, Deane, et al., 2006). The result is in line with findings from various studies. In their meta-analysis, Dunster-Page et al. (2017) concluded that there are still too few results to confirm the association between the therapy relationship and suicide attempts. The present study helps to substantiate this relationship by showing a positive correlation between the therapy relationship and outcome. The influence of the therapy relationship on suicidal ideation in the long-term course of therapy was also investigated. The analyses supported the concept that the therapy relationship is related to the expression of suicidal ideation. This is interesting, as suicide attempts were reduced in ASSIP, but no significant difference in suicidal thoughts was found between the ASSIP and control groups (Gysin-Maillart, Schwab, et al., 2016). This appears to be a consistent pattern; many therapeutic interventions were able to reduce suicide attempts but did not affect suicidal ideation (Hofstra et al., 2020; McCabe et al., 2018; Meerwijk et al., 2016) or, conversely, reduced suicidal ideation did not affect suicide attempts (Ellis et al., 2017). It is therefore even more interesting that the results of the present study demonstrated an association between the therapy relationship and suicidal ideation.

Limitations and Conclusions

General limitations to the study which provided the data used in the present investigation are described in detail in the article by Gysin-Maillart, Schwab, et al. (2016). The main limitations of the evaluation study relate to the sample size of 120 individuals. To confirm the results, the analyses should be replicated with larger samples. Another problem is the drop-out rate, as over the long term more and more people did not participate in the study. It is a known problem that high rates of dropout can mediate outcomes. Given the low attrition rate of 3 dropouts in this study from the treatment arm, the effect on outcome should be negligible.

In addition, there is a tendency for bias in all data collected through self-report due to socially desirable responses. Since all persons participated in the study voluntarily, a selection bias cannot be ruled out.

The limitations of the present study will now be discussed in more detail. It is critical for the two Cox regressions that the sample ($N = 60$) in general and the events that occurred (suicide attempts = 5) must be considered to be rather too small to allow reliable statistical statements. Although according to Vittinghoff and McCulloch (2007), reliable results can be found even in samples with less than 10 events, the total sample size of $N = 60$ should be considered too small in the context of the sample sizes used in the simulation study (Vittinghoff & McCulloch, 2007). In addition, Button et al. (2013) emphasize the danger of drawing erroneous conclusions from results if the power is too low, even if the results are significant. Therefore, the results of survival time analyses should be replicated with larger samples.

When interpreting the correlations, it must be taken into account that the suicidal thoughts (t_2-t_5), which function as dependent variables in the regression analysis, are not, strictly speaking, interval-scaled, since they were collected using a Likert scale. The use of Likert scales as interval-scaled data is controversial (Wu & Leung, 2017). It has been shown that the Pearson correlation is relatively robust to violations of this condition (Norman, 2010). To ensure that this did not overestimate the correlations, additional Spearman's correlations were calculated with the sum scores of suicidal ideation (t_2-t_5). The correlations were almost identical.

It should be considered that the analyses do not provide information on the causality of the relationships. Prerequisites for causal interpretations are the covariation of the variables, the temporal prior of the independent variable, and the exclusion of alternative explanations (Eid et al., 2015). The analyses confirmed the covariance of the variables. In addition, the treatment relationship and treatment latency were collected before suicidal ideation and suicide attempts; accordingly, the temporal criterion is met. Only the exclusion of alternative explanations could not be guaranteed, since neither the treatment latency nor the treatment relationship can be manipulated, for both ethical and practical reasons. This means that the analyses do not provide any information on whether a better therapy relationship leads to fewer suicide attempts or suicidal thoughts or vice versa. Although the temporally staggered recording of the therapy relationship and the suicide attempts/suicidal thoughts indicate that the therapy relationship influences the suicide attempts/suicidal thoughts rather than vice versa, no conclusive statement is possible (Eid et al., 2015).

Since no relationship between treatment latency and treatment outcome could be found, this implies that ASSIP can be implemented and effective regardless of the time of the last suicide attempt. However, a statistically nonsignificant result cannot necessarily be interpreted as a "null" finding. It could very well be that the study is underpowered, resulting in a nonsignificant finding. However, a power calculation was not possible because, to the best of our knowledge at the time of writing, there were no other published studies investigating treatment latency in suicidal behavior.

In contrast, the treatment relationship plays a central role in ASSIP. One specific way to consider this factor in therapy would be to continuously record the assessed quality of the therapeutic relationship. This could be implemented by patients assessing the perceived quality of the therapeutic relationship after each of the three sessions. Feedback on this assessment to the ASSIP therapists can be useful so that possible discrepancies can be addressed in the following session. Various authors have already recommended such a procedure (e.g., Shaw & Murray, 2014)

CONCLUSION

Considering the limitations mentioned above, the following conclusions can be drawn from the study: No relationship between treatment latency and treatment outcome could be found, suggesting that ASSIP can be implemented at any time after the last suicide attempt. The treatment relationship is an important factor for both suicidal thoughts and suicide attempts in the long-term course of ASSIP.

AUTHOR CONTRIBUTION

AGM planned, designed and conducted the study, collected data, made data entries, and revised the manuscript. SB made the data analysis, interpreted the data, and made the first draft. SPL revised the first draft into the second translated version and revised the analysis. All authors approved the final version of the manuscript.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

AUTHOR NOTES

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DATA AVAILABILITY STATEMENT

Data are available upon reasonable request.

REFERENCES

Alexander, L. B., & Luborsky, L. (1986). The Penn Helping Alliance Scales. In *The psychotherapeutic process: A research handbook* (pp. S325–S366). Guilford Press.

Altamura, A. C., Buoli, M., Albano, A., & Dell'Osso, B. (2010). Age at onset and latency to treatment (duration of untreated illness) in patients with mood and anxiety disorders: A naturalistic study. *International Clinical Psychopharmacology*, *25*(3), 172–179. doi:10.1097/YIC.0b013e3283384c74

Altamura, A. C., Dell'Osso, B., Mundo, E., & Dell'Osso, L. (2007). Duration of untreated illness in major depressive disorder: A naturalistic study. *International Journal of Clinical Practice*, *61*(10), 1697–1700. doi:10.1111/j.1742-1241.2007.01450.x

Bassler, M., Potratz, B., & Krauthauser, H. (1995). Der "Helping Alliance Questionnaire" (HAQ) von Luborsky. Möglichkeiten zur Evaluation des therapeutischen Prozesses von stationärer Psychotherapie [The "Helping Alliance Questionnaire" (HAQ) by Luborsky.]. *Psychotherapeut*, *40*(1), 23–32.

Beck, A. T., & Steer, R. A. (1991). *Manual for the Beck scale for suicide ideation*. Psychological Corporation, 63.

Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica*, *47*(5), 1287–1294. doi:10.2307/1911963

Brown, G. K., Ten Have, T., Henriques, G. R., Xie, S. X., Hollander, J. E., & Beck, A. T. (2005). Cognitive therapy for the prevention of suicide attempts a randomized controlled trial. *JAMA*, *294*(5), 563–570. doi:10.1001/jama.294.5.563

Button, K. S., Ioannidis, J. P. A., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S. J., & Munafò, M. R. (2013). Power failure: Why small sample size undermines the reliability of neuroscience. *Nature Reviews. Neuroscience*, *14*(5), 365–376. doi:10.1038/nrn3475

Calati, R., & Courtet, P. (2016). Is psychotherapy effective for reducing suicide attempt and non-suicidal self-injury rates? Meta-analysis and meta-regression of literature data. *Journal of Psychiatric Research*, *79*, 8–20. doi:10.1016/j.jpsychires.2016.04.003

Casson, R. J., & Farmer, L. D. (2014). Understanding and checking the assumptions of linear regression: A primer for medical researchers. *Clinical & Experimental Ophthalmology*, *42*(6), 590–596. doi:10.1111/ceo.12358

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. L. Erlbaum Associates.

Cox, D. R. (1972). Regression models and life-tables. *Journal of the Royal Statistical Society*, *34*(2), 187–202. doi:10.1111/j.2517-6161.1972.tb00899.x

Cusack, J., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2006). Emotional expression, perceptions of therapy, and help-seeking intentions in men attending therapy services. *Psychology of Men & Masculinity*, *7*(2), 69–82. doi:10.1037/1524-9220.7.2.69

de Haan, L., Linszen, D. H., Lenior, M. E., de Win, E. D., & Gorsira, R. (2003). Duration of untreated psychosis and outcome of schizophrenia: Delay in intensive psychosocial treatment versus delay in treatment with antipsychotic medication. *Schizophrenia Bulletin*, *29*(2), 341–348. doi:10.1093/oxfordjournals.schbul.a007009

Dell'Osso, B., Camuri, G., Benatti, B., Buoli, M., & Altamura, A. C. (2013). Differences in latency to first pharmacological treatment (duration of untreated illness) in anxiety disorders: A study on patients with panic disorder, generalized anxiety disorder and obsessive-compulsive disorder. *Early Intervention in Psychiatry*, *7*(4), 374–380. doi:10.1111/eip.12016

Dunster-Page, C., Haddock, G., Wainwright, L., & Berry, K. (2017). The relationship between therapeutic alliance and patient's suicidal thoughts, self-harming behaviours and suicide attempts: A systematic review. *Journal of Affective Disorders*, *223*, 165–174. doi:10.1016/j.jad.2017.07.040

Eid, M., Gollwitzer, M., & Schmitt, M. (2015). *Statistik und forschungsmethoden* (4. Aufl.). Beltz.

Ellis, T. E., Rufino, K. A., & Allen, J. G. (2017). A controlled comparison trial of the Collaborative Assessment and Management of Suicidality (CAMS) in an inpatient setting: Outcomes at discharge and six-month follow-up. *Psychiatry Research*, *249*, 252–260. doi:10.1016/j.psychres.2017.01.032

Farrelly, S., Brown, G., Szmukler, G., Rose, D., Birchwood, M., Marshall, M., … Thornicroft, G. (2014). Can the therapeutic relationship predict 18 month outcomes for individuals with psychosis? *Psychiatry Research*, *220*(1-2), 585–591. doi:10.1016/j.psychres.2014.07.032

Franklin, J. C., Ribeiro, J. D., Fox, K. R., Bentley, K. H., Kleiman, E. M., Huang, X., … Nock, M. K. (2017). Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research. *Psychological Bulletin*, *143*(2), 187–232. doi:10.1037/bul0000084

Ghio, L., Gotelli, S., Marcenaro, M., Amore, M., & Natta, W. (2014). Duration of untreated illness and outcomes in unipolar depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, *152-154*, 45–51. doi:10.1016/j.jad.2013.10.002

Grambsch, P. M., & Therneau, T. M. (1994). Proportional hazards tests and diagnostics based on weighted residuals. *Biometrika*, *81*(3), 515–526. doi:10.1093/biomet/81.3.515

Gysin-Maillart, A., & Michel, K. (2013). *Kurztherapie nach Suizidversuch: ASSIP – Attempted Suicide Short Intervention Program* (1. Aufl.). Verlag Hans Huber, Hogrefe AG.

Gysin-Maillart, A., Schwab, S., Soravia, L., Megert, M., & Michel, K. (2016). A novel brief therapy for patients who attempt suicide: A 24-months follow-up randomized controlled study of the Attempted Suicide Short Intervention Program (ASSIP). *PLoS Medicine*, *13*(3), e1001968. doi:10.1371/journal.pmed.1001968

Gysin-Maillart, A. C., Soravia, L. M., Gemperli, A., & Michel, K. (2017). Suicide ideation is related to therapeutic alliance in a brief therapy for attempted suicide. *Archives of Suicide Research*, *21*(1), 113–126. doi:10.1080/13811118.2016.1162242

Hofstra, E., van Nieuwenhuizen, C., Bakker, M., Özgül, D., Elfeddali, I., de Jong, S. J., & van der Feltz-Cornelis, C. M. (2020). Effectiveness of suicide prevention interventions: A systematic review and meta-analysis. *General Hospital Psychiatry*, *63*, 127–140. doi:10.1016/j.genhosppsych.2019.04.011

Hvid, M., & Wang, A. G. (2009). Preventing repetition of attempted suicide–I. Feasibility (acceptability, adherence, and effectiveness) of a Baerum-model like aftercare. *Nordic Journal of Psychiatry*, *63*(2), 148–153. doi:10.1080/08039480802423022

Ilgen, M. A., Czyz, E. K., Welsh, D. E., Zeber, J. E., Bauer, M. S., & Kilbourne, A. M. (2009). A collaborative therapeutic relationship and risk of suicidal ideation in patients with bipolar disorder. *Journal of Affective Disorders*, *115*(1-2), 246–251. doi:10.1016/j.jad.2008.07.019

Knief, U., & Forstmeier, W. (2018). Violating the normality assumption may be the lesser of two evils. bioRxiv, 498931. doi:10.1101/498931

Lizardi, D., & Stanley, B. (2010). Treatment engagement: A neglected aspect in the psychiatric care of suicidal patients. *Psychiatric Services*, *61*(12), 1183–1191. doi:10.1176/ps.2010.61.12.1183

Mann, J. J., Apter, A., Bertolote, J., Beautrais, A., Currier, D., Haas, A., … Hendin, H. (2005). Suicide prevention strategies: A systematic review. *JAMA*, *294*(16), 2064–2074. doi:10.1001/jama.294.16.2064

McCabe, R., Garside, R., Backhouse, A., & Xanthopoulou, P. (2018). Effectiveness of brief psychological interventions for suicidal presentations: A systematic review. *BMC Psychiatry*, *18*(1), 120. doi:10.1186/s12888-018-1663-5

Meerwijk, E. L., Parekh, A., Oquendo, M. A., Allen, I. E., Franck, L. S., & Lee, K. A. (2016). Direct versus indirect psychosocial and behavioural interventions to prevent suicide and suicide attempts: A systematic review and meta-analysis. *The Lancet. Psychiatry*, *3*(6), 544–554. doi:10.1016/S2215-0366(16)00064-X

Michel, K. (2011). General aspects of therapeutic alliance. In K. Michel & D. A. Jobes (Eds.), *Building a therapeutic alliance with the suicidal patient* (S. 13–28). American Psychological Association.

Michel, K., & Valach, L. (2011). The narrative interview with the suicidal patient. In *Building a* Therapeutic Alliance with the Suicidal Patient (S. 63–80).

Nordentoft, M., & Sogaard, M. (2005). Registration, psychiatric evaluation and adherence to psychiatric treatment after suicide attempt. *Nordic Journal of Psychiatry*, *59*(3), 213–216. doi:10.1080/08039480510027706

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Sciences Education*, *15*(5), 625–632. doi:10.1007/s10459-010-9222-y

O'Connor, S. S., Comtois, K. A., Wang, J., Russo, J., Peterson, R., Lapping-Carr, L., & Zatzick, D. (2015). The development and implementation of a brief intervention for medically admitted suicide attempt survivors. *General Hospital Psychiatry*, *37*(5), 427–433. doi:10.1016/j.genhosppsych.2015.05.001

O'Connor, S. S., McClay, M. M., Choudhry, S., Shields, A. D., Carlson, R., Alonso, Y., … Nicolson, S. E. (2020). Pilot randomized clinical trial of the Teachable Moment Brief Intervention for hospitalized suicide attempt survivors. *General Hospital Psychiatry*, *63*, 111–118. doi:10.1016/j.genhosppsych.2018.08.001

Penttilä, M., Jääskeläinen, E., Hirvonen, N., Isohanni, M., & Miettunen, J. (2014). Duration of untreated psychosis as predictor of long-term outcome in schizophrenia: Systematic review and meta-analysis. *The British Journal of Psychiatry*, *205*(2), 88–94. doi:10.1192/bjp.bp.113.127753

Perron, B. E., Zeber, J. E., Kilbourne, A. M., & Bauer, M. S. (2009). A brief measure of perceived clinician support by patients with bipolar spectrum disorders. *The Journal of Nervous and Mental Disease*, *197*(8), 574–579. doi:10.1097/NMD.0b013e3181b08bc6

Probert-Lindström, S., Berge, J., Westrin, Å., Öjehagen, A., & Pavulans, K. (2020). (2020)*l* Long-term risk factors for suicide in suicide attempters examined at a medical emergency in patient unit: Results from a 32-year follow-up study. *BMJ Open*, *10*(10), e038794. doi:10.1136/bmjopen-2020-038794

Ramsay, R. J., & Newman, C. F. (2005). After the attempt: Maintaining the therapeutic alliance following a patient's suicide attempt. *Suicide and Life-Threatening Behavior*, *35*(4), 413–424. doi:10.1521/suli.2005.35.4.413

Ring, M., & Gysin-Maillart, A. (2020). Patients' satisfaction with the therapeutic relationship and therapeutic outcome is related to suicidal ideation in the Attempted Suicide Short Intervention Program (ASSIP). *Crisis*, *41*(5), 337–343. doi:10.1027/0227-5910/a000644

Ring, M., Walther, S., & Gysin-Maillart, A. C. (2019). The association between therapeutic alliance and individuals' wish to die or live. *Psychology*, *10*(12), 1711–1725. doi:10.4236/psych.2019.1012112

Shaw, S. L., & Murray, K. W. (2014). Monitoring alliance and outcome with client feedback measures. *Journal of Mental Health Counseling*, *36*(1), 43–57. doi:10.17744/mehc.36.1.n5g64t3014231862

Turner, R. M. (2000). Naturalistic evaluation of dialectical behavior therapy-oriented treatment for borderline personality disorder. *Cognitive and Behavioral Practice*, *7*(4), 413–419. doi:10.1016/S1077-7229(00)80052-8

Vittinghoff, E., & McCulloch, C. E. (2007). Relaxing the rule of ten events per variable in logistic and Cox regression. *American Journal of Epidemiology*, *165*(6), 710–718. doi:10.1093/aje/kwk052

World Health Organization. (2019). Suicide: One person dies every 40 seconds. Abgerufen am 14.07.20 von. https://www.who.int/news/item/09-09-2019-suicide-one-person-dies-every-40-seconds.

World Health Organization. (2020). Suicide Data. Abgerufen am 14.07.20 von. https://www.who.int/mental_health/prevention/suicide/suicideprevent/en/.

Wu, H., & Leung, S.-O. (2017). Can likert scales be treated as interval scales? – A simulation study. *Journal of Social Service Research*, *43*(4), 527–532. doi:10.1080/01488376.2017.1329775