

Testing brief intervention and phone contact among subjects with suicidal behavior: a randomized controlled trial in French Polynesia in the frames of the World Health Organization/Suicide Trends in At-Risk Territories study

Stéphane Amadéo,¹⁻⁴ Moerani Rereao,¹ Aurelia Malogne,² Patrick Favro,⁵ Ngoc Lam Nguyen,⁶ Louis Jehel,^{3,7} Allison Milner,⁸ Kairi Kolves,⁸ Diego De Leo⁸

¹Centre Hospitalier de Polynésie Française, Tahiti, Polynésie Française; ²Centre de Prévention du Suicide de Polynésie Française, Tahiti, Polynésie Française; ³Unité Inserm U699, Paris, France; ⁴Centre des Nouvelles Etudes sur le Pacifique, Université de Nouvelle Calédonie; ⁵Université de Polynésie Française, Polynésie Française; ⁶Direction de la Santé Publique de Polynésie française, Tahiti, Polynésie Française; ⁷Centre Hospitalier Universitaire, Martinique, France; ⁸Australian Institute for Suicide Research and Prevention, Griffith University, Brisbane, Australia

Abstract

The World Health Organization *Suicide trends in at-risk territories* study is a multi-site regional research program operating first in French Polynesia and countries of the Western Pacific, then extended to the world. The aims of the study were to establish a monitoring system for suicidal behaviors and to conduct a randomised control trial intervention for non-fatal suicidal behaviors. The latter part is the purpose of the present article. Over the period 2008-2010, 515 patients were admitted at the Emergency Department of the Centre Hospitalier de Polynésie Française for suicidal behavior. Those then hospitalized in the Psychiatry Emergency Unit were asked to be involved in the study and randomly allocated to either Treatment As Usual (TAU) or TAU plus Brief Intervention and Contact (BIC), which provides a psycho-education session and a follow-up of 9 phone contacts over an 18-months period. One hundred persons were assigned to TAU, while 100 participants were allocated to the BIC group. At the end of the follow-up there were no significant differences between the two groups in terms of number of presentations to the hospital for repeated suicidal

behaviors. Although the study could not demonstrate the superiority of a treatment over the other, nevertheless – given its importance – the investigation captured public attention and was able to contribute to the awareness of the need of suicide prevention in French Polynesia. The BIC model of intervention seemed to particularly suit the geographical and health care context of the country.

Introduction

The Western Pacific region contains a diverse range of countries that differ in terms of culture, population size, and health care facilities.¹ Pacific island communities, even those that remain territories of European nations, such as French Polynesia, do not reach the same standards of psychiatric care as available in urban western centers.²

French Polynesia includes over 113 islands, scattered over an area larger than Europe. Out of the 268,270 inhabitants counted in the 2012 census of French Polynesia,³ only the 178,174 inhabitants of Tahiti (the main island) have access to psychiatric and psychological care (e.g. Centre Hospitalier de Polynésie Française). The geographical remoteness of the other 112 islands of the country makes treatment of mental conditions difficult. Suicide standardized rates remarkably increased in recent years:⁴ from 9.7 per 100,000 in the 1999-2004 period to 11.3 per 100,000 in 2005-2010, with a peak in 2008 of 13.7 per 100,000. Increased suicide rates have elicited a number of suicide prevention activities modulated around the geographical and socio-cultural context of the country.⁵ With regards to non-fatal suicidal behavior, one of the strategies suggested to mitigate the risk of recurrence is reinforcement of social support by maintaining long-term contact with suicidal individuals. A number of studies tested this approach producing mixed results (Table 1). Several studies suggest that regular contact with patients may help to reduce both deaths due to suicide and repetition of suicide attempts.⁶⁻¹⁷ Other investigations fail to show any effects on either deaths due to suicide,¹⁵ or suicide attempt repetitions.^{19,20} It has been hypothesized that strategies improving social connectedness might be particularly pertinent in the context of isolated Pacific islands.²¹

The WHO Suicide Trends in At-Risk Territories (START) study was launched in 2007 in the Western Pacific Region of WHO. There are four components in the START study: component i) a monitoring system to collect systematic informations about fatal and non fatal suicidal behaviors, ii) a randomized control trial intervention for non-fatal suicidal behaviors, iii) a psychological autopsies, and

Correspondence: Stéphane Amadéo, Centre Hospitalier de Polynésie Française (CHPF), Département de Psychiatrie. BP 1640, 98713 Papeete, Tahiti, French Polynesia. Tel.: +689.4048.4735 - Fax: +689.4048.4725. E-mail: amadeo@mail.pf

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iv) a follow-up of medically serious suicide attempters. While its main features have been described elsewhere,²² This paper presents the results of the Component Two, a randomised control intervention performed on suicidal individuals of French Polynesia, comparing treatment as usual (TAU) with treatment as usual plus Brief Intervention and Contact (BIC).

Materials and Methods

Study protocol

The Component Two of the START study applied the same protocol as the WHO/Suicide Prevention-Multisite Intervention Study on Suicide (SUPRE-MISS).⁸ The WHO/SUPRE-MISS study presented a significant reduction in both general mortality and death by suicide in the group treated with TAU + BIC at the 18-month follow-up in several middle- and low-income countries.⁸

Outcome measures

This randomized controlled trial used number of suicides and repeated non-fatal suicidal behavior (NFSB), as primary outcome measures.

Implementation of the study

In French Polynesia, the START research team was composed of one psychiatrist (SA), three psychologists (MR, AM, PF), one epidemiologist (NLN), and a few psychology students. The relevant ethics committee approved the research protocol (Comité d'Ethique de Polynésie Française, *notice* n° 29 of the 11.01.2007) and a grant from the *Etablissement Public Administratif pour la Prévention* (Minsistry of Health) permitted the implementation of the study, which operated from 1st January 2008 to 30 June 2012. All patients gave written consent to enrol in the randomized controlled trial. The initial interviews were conducted face-to-face by a trained psychiatrist or psychologist a maximum of 3 days after admission to the Psychiatric Department. Psychologists and psychiatrists also conducted the follow-up contacts.

Enrollment and sample size

Over the period 2008-2010, 556 presentations of NFSB by 515 persons were admitted to the Emergency Department of the *Centre Hospitalier de Polynésie Française* (CHPF). This involves all behaviors of intentional self-harm, regardless of the presence of suicidal intention.²³

Due to limited fund availability, investigators decided to lock the maximum entry to the study at 200 subjects. A sequence based on a random procedure (block randomization) was used to assign all enrolled subjects to TAU (n=100) or TAU + BIC (n=100) (Figure 1).

In French Polynesia, TAU consists of one psychiatric assessment for all *suicide attempters*, and then either hospitalisation, outpatient follow-up, or no care at all. All patients included in this study had a short psychiatric hospitalization (minimum 24 hours), with some of them receiving outpatient psychiatric or psychological follow-up. In addition to TAU, the BIC treatment modality included: i) a

one-hour information session, as close to the time of discharge as possible; ii) nine follow-up contacts (phone calls according to a specific agenda at 1, 2, 4, 7 and 11 week(s), and 4, 6, 12 and 18 months) after the intake, which were conducted by a person with clinical experience (e.g. psychiatrist or psychologist). During these contacts, questions included whether the patients had repeated the suicidal behavior, how they felt, whether they needed help and if they had sought support. Subjects receiving only TAU were contacted using the START follow-up form – as for the TAU+BIC group – at 12 and 18 months after discharge from hospital.

Instruments

The survey questionnaire used in Component Two of the WHO/START Study was translated into French and Tahitian, and adapted to take into account cultural specificities, then back-translated to English and pilot-tested in 20 participants recruited from the Emergency Department of the *Centre Hospitalier de Polynésie Française*. The questionnaire was largely based on the European Parasuicide Study Interview Schedule (EPSIS),²⁴ which had been used in the WHO/EURO Multicentre Study on Suicidal Behavior.²⁵ It covered socio-demographic and clinical information (e.g. mental and physical health status, traumatic experiences, alcohol and drug use), and included several self-report scales (for a detailed description, see De Leo *et al.*).²² An one-page questionnaire was used to record follow-up contacts with the patients. Additional information from the hospital emergency department was obtained because participants may fail to report new episodes of non-fatal suicidal behavior. Coroner's records of deaths by suicide one year after the end of study were also reviewed.

Data analysis

Data entry and cleaning were conducted under the direction of the principal investigator (S.A.), with the help of two clinical psychologists (M.R., A.M.) and double-checked by an epidemiologist (L.N.). Selected variables (age, sex, marital status, education employment, consequences of the act, psychiatric disorders) were compared to determine any differences between the two treatment groups by using the chi-square test. The Fisher's exact test was used with small numbers per group (less than 5). A probability level of 0.05 (two-sided) was considered as significant.

Results

Figure 1 depicts the enrolment of subjects. These were more frequently female, single, with secondary education and employed (Table 2). Over half of subjects in the TAU+BIC group had a diagnosis of mood disorder. A large proportion of cases (63% in the TAU+BIC, 72% in TAU only group) had previous history of suicidal behaviors before the index episode.

There was no statistical difference in the frequency of suicidal behavior (suicides and repeated NFSB) between TAU+BIC and TAU only groups (Table 3). Incidentally, two cases of suicide were recorded in the TAU only group *versus* none in those that received TAU+BIC.

Additional analysis in specific subgroups at higher risk of suicidal behavior was performed (Table 4). Following subgroups were chosen: i) those with personality disorders, ii) those with a history of sexual abuse, and iii) those who had made multiple (n≥3) attempts before participating in the study. BIC+TAU did not show significant differences compared to TAU in

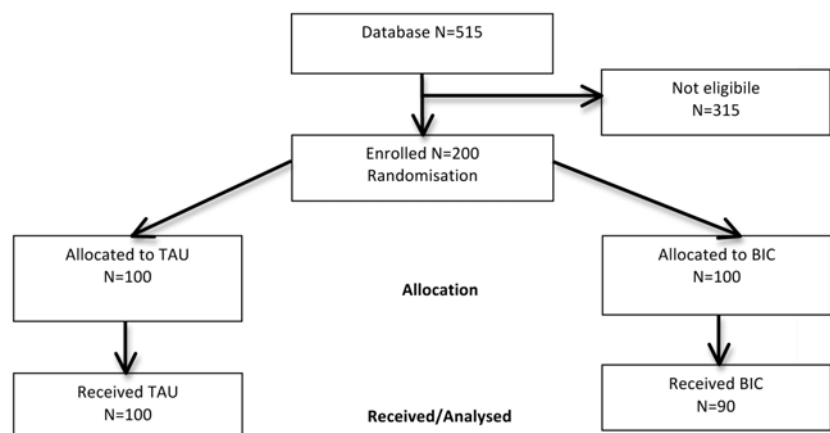


Figure 1. Flowchart of suicide trends in at-risk territories study in French Polynesia.

specif subgroups (Table 4). However, it is important to note that subgroups are small with limited statistical power.

Discussion

This study was part of a multisite, cross-cultural research study that sought to evaluate the effectiveness of a simple follow-up model of care (BIC) in persons who sought help from

an Emergency Department due to non-fatal suicidal behavior. As a clinical note, in most cases patients were happy to be involved in the study and to receive the follow-up phone calls, especially the residents of remote islands. Females were more compliant than males to follow-up contacts attempt.

This study was initially designed as a multi-site intervention in Pacific region, however, only French Polynesia could implement it in the hospital setting. Therefore the size of the sample and the timeframe of the investigation

(eighteen months for each case) made it difficult to obtain a statistically detectable impact in terms of suicide deaths. However, a difference in relapse to non-fatal suicidal behavior might be found. We are not aware of similar studies from the Pacific area, but it is possible that, with a mean follow up of 1.5 years, a 1-2% reduction of deaths by suicide could be expected within that timeframe, on the basis of comparable studies (see, for example Hwton *et al.*).²⁶ In this experience, two suicides did occur in the TAU sample only, with none in the

Table 1. Studies on continuity of care of suicide attempters or individuals at-risk of suicidal behavior.

Country	Intervention in population having committed a suicide attempt	Results
Australia ¹²	12 contacts (postal cards every month) after hospital discharge. Young aged 15-24	RCT, n=778. SA ns; SA in intervention group 57/378, 15.1% (95%CI 11.5% to 18.7%) vs in control group 68/394, 17.3% (13.5% to 21.0%). However, in unadjusted analysis the number of repetitions was significantly reduced [IRR=0.55 (0.35 to 0.87)]
Taiwan ¹⁶	6-12 contacts (phone calls during 3-6 month, 2/month). Frequency of contacts change following assessment of risk (BSRS, Pierce RS, SAD PERSONS S): high (psychiatrist), moderate (1-2 contacts/week), low (2 contacts/month), no risk (stop contacts)	No RCT, n= 44,364 received aftercare (854 died by suicide) S*. Interventions decreased subsequent suicides for attempters (with initial willingness for aftercare OR=0.36, 95%CI 0.26-0.51; without initial willingness for aftercare: OR=0.78, 95%CI 0.62-0.97). In addition, aftercare was shown to prolong duration to eventual death.
Spain ¹⁴	7 contacts (phone call at 1 week, 1, 3, 6, 9, 12 months) to assess risk and increase adherence to treatment	RCT, n=991. SA*, Delayed SA*. Mean time in days to first reattempt=346.47 for intervention vs 316.46 in the control group.
Iran ¹⁵	8-9 contacts (postal cards, 1, 2, 3, 4, 6, 8, 10, 12 months + birthday) to assess risk and increase adherence to treatment	RCT, n=2300. SA*, SI*. Reeducation of SI (relative risk reduction (RRR)=0.31, 95%CI 0.22-0.38), SA (RRR=0.42, 95%CI 0.11-0.63) in the intervention group compared to control group.
New Zealand ¹¹	6 contacts (postal cards over 12 months) after hospital discharge	RCT, n=327. SA ns. No significant differences between the control and intervention groups in the proportion of participants re-presenting with self-harm or in the total number of re-presentations for self-harm.
Brazil, India, Sri Lanka, Iran, China ^{8,19}	1 hour education session (epidemiology, risk and protecting factors, help solutions, human and phone resources) + 9 contacts (phone call or visit at 1, 2, 4, 7, 11 weeks/4, 6, 12, 18 months)	RCT, n=1867. S* SA ns. Significant reeducation of suicides in the intervention group (BIC, 0.2% vs TAU, 2.2%, chi2=13.83, P<0.001). No change in SA - similar in the BIC and TAU groups (7.6% vs. 7.5%, chi2=0.013; P=0.909), but differences in rates across the five sites.
France ¹⁷	3 contacts (phone call at 1, 3, 13 months) after hospital discharge	RCT, n= 605. 1 mo. SA* 3 mo. SA ns. The number of participants contacted at one month who reattempted suicide was significantly lower than that of controls [12% (13/107) vs 22% (62/280); chi2=4.7, df=1, P=0.03]. No differences in the follow-up at 3 months.
Australia ¹³	8 contacts (postal cards at 1, 2, 3, 4, 6, 8, 10, 12 months) after hospital discharge	RCT, n=772. SA*. Significant reduction in the rate of SA repetition, with incidence risk ratio of 0.49 (95%CI 0.33-0.73)
Sweden ¹⁸	2 contacts (phone calls at 1, 5 months after 1st SA) + support to initiate or go on the treatment	RCT, n=216. SA ns. Randomized groups did not differ in repetition of SA during follow-up or in improvement in GSI (SCL-90), GAF and SSI, but individuals with no initial treatment the intervention group improved more in certain psychological symptom dimensions (SCL-90).
Italy ^{6,7}	2 contacts / week for assessment of the needs and to provide emotional support in the elderly + Alarm system to call for help (tele-help/tele-check service)	No RCT. S*. Short-term: Only one death by suicide in the elderly subjects connected to Tele-Help/Tele-Check vs expected number of 7.44 for the general population. Long-term: Significantly fewer suicide deaths (n=6) occurred among elderly service users [standardized mortality ratio (SMR) 28.8%] than expected (n=20.86; chi2=10.58, d.f.=1, P<0.001)
USA ^{9,10}	4 contacts (letters during 5 years) after hospital discharge and refusal to be treated. Follow-up up to 15 years after SA	RCT, n=843. S*. Short term (3 years) and long term (5 and 15 years): Intervention group shows the lowest rate of suicide (P=0.04) in the first five years. Then, the difference with the control group diminishes and disappears after 14 years.

*Significant reduction; ns, non-significant; SA, suicide attempt; SI, suicidal ideation; S, Suicide; RCT: Randomised Control Trial.

TAU+BIC. Since statistical significance was not found, these differences cannot be attributable to intervention. As in the case of the WHO/SUPRE-MISS study,²⁰ also this experience in French Polynesia did not show differences in terms of repeated NFSB frequency between the two groups of subjects. We may speculate that the observed differences are too small to permit differentiation, or that heterogeneity within the NFSB performers obscured any measurable effect. These individuals comprise subjects of different ages, with or without psychiatric diagnosis and/or history of multiple attempts/self-harm episodes, with a history of alcohol or drug misuse, and with different levels of suicide intention (from zero to full determination). These particularities may be equally distributed within the two groups of subjects (TAU and TAU+BIC), but in reality the final figures would absorb the significant variability in group composition and may dilute treatment impacts. However, the (very) small numbers of subgroups (Table 2) do not show differences, and no particular subgroup seemed to significantly benefit from the brief intervention and contact. Another possible explanation lies on the rather intense level of care that every suicidal subject routinely receives in French Polynesia. Close to 100% of suicidal subjects do receive psychiatric assessment, and on average about 50% are hospitalised (usually between 1 day and 1 week) for the treatment of suicidal crisis. Of these, about 65% would also receive psychiatric or psychological follow up. This indicates that most of TAU subjects in French Polynesia actually receive considerable clinical support following NFSB. It is possible that this significant effect of the current TAU model obscures any potentially gain by the addition of BIC. We could make the assumption that TAU+BIC would be significantly more effective than TAU alone if TAU would not include such substantial psychiatric intervention and treatment, as is the case of many countries participating to the START Study.²⁷ Consequently, in countries where psychiatric treatment is routinely available, BIC perhaps may be improved by focus on integration with the primary treatment providers or by increased frequency or structure of contacts to offer a detectable risk reduction. It is also possible that BIC might encourage increased relapse of non-fatal suicidal behavior in subjects driven to attract more attention from care providers and proxies.¹⁹

Apart from sample size, the study acknowledges several other limitations, particularly the relevant drop-out rate in both TAU+BIC and TAU only groups. We could detect that the main reason for absence of contact was the expiration of mobile phone cards. This is problematic, because it could lead to an underestimation of new episodes of NFSB or deaths. As mentioned above, we tried to limit this bias by

Table 2. Socio-demographic characteristics of subjects enrolled (n=190).

Characteristics	TAU (n=100)		BIC (n=90)		P-value
	n	%	n	%	
Age (years)	-	31.48	-	33.00	
Sex					
Male	36	36	31	34.4	0.8
Female	64	64	58	64.4	0.9
Transsexual	0	0	1	1.1	0.5
Marital status					
Single	32	32	25	27.8	0.5
Married	53	53	58	64.4	0.1
Widowed	1	1	1	1.1	1.0
Divorced	12	12	5	5.6	0.1
Education					
None	3	3	1	1.1	0.4
Primary	6	6	9	10	0.3
Secondary	57	57	38	42.2	0.04
Higher (non-university)	10	10	9	10	1.0
University	14	14	25	27.8	0.01
Other	10	10	8	8.9	0.8
Employment					
Full/part-time	50	50	44	49.4	0.9
Temporary	6	6	9	10.1	0.3
Unemployed	14	14	18	20.2	0.3
Disabled	1	1	0	0	1.0
Retired	3	3	1	1.1	0.4
Student	10	10	9	10	1.0
Armed services	2	2	0	0	0.2
Housekeeper	6	6	4	4.5	0.6
Other	5	5	5	5	0.9
Consequences					
None	32	32.3	23	25.6	0.3
No danger to life	41	41.4	46	51.1	0.2
Danger to life	17	17.2	19	21.1	0.5
No information	9	9.1	2	2.2	0.04
Psychiatric disorder					
Alcohol use disorder	2	2	3	3.3	0.7
Cannabis use disorder	1	1	1	1.1	1.0
Psychotic disorder	7	7	3	3.3	0.3
Mood disorder	50	50	47	51.7	0.8
Anxiety/adjustment disorder	17	17	16	17.6	0.9
Personality disorder	2	2	2	2.2	1.0

TAU, Treatment As Usual; BIC, Brief Intervention and Contact.

Table 3. Results of Brief Intervention and Contact after 18 months follow-up in French Polynesia (n=190).

Characteristics	TAU (n=100)		BIC (n=90)		Test	P-value
	n	%	n	%		
New episodes of non-fatal Suicidal behavior	21	21.0	24	26.7	Chi ² = 0.84	0.360
Suicide	2	2.0	0	0	Fisher's exact	0.500

Table 4. Suicide repeated NFSB in different subgroups of Brief Intervention and Contact after 18 months follow-up in French Polynesia.

	TAU		BIC		Test	P-value
	n/N*	%	n/N*	%		
Personality disorders (primary and secondary dg)	3/12	25.0	5/11	45.5	Fisher exact	0.400
History of sexual abuse	9/21	42.8	5/15	33.3	Chi ² =0.33	0.563
Past history of suicide attempt >37/14		50.0	9/17	52.9	Chi ² =0.03	0.870

TAU, Treatment As Usual; BIC, Brief Intervention and Contact. *N, persons with the condition; n, persons with the condition repeating NFSB during follow-up.

improving the collection of information from other sources and the information about the main outcome measures from hospital database and coroner's office using intention to treat approach. Checks were made from the hospital database of admissions, and police files in case of violent deaths. Further, the sample is potentially affected by selection issues as the geographical distribution of the country made it difficult to connect with those in communities outside the main island of Tahiti. These physical barriers may prevent some people from seeking treatment following a suicide attempt even when they were invited to do so. Considering this, a telephone management programme for patients discharged from the ED after an episode of suicidal behavior could markedly improve the maintenance of contact and maybe helpful in reducing the recurrence of these dangerous behaviors in the remote islands of French Polynesia.

Conclusions

Further research is needed in order to assess whether the addition to treatment as usual of BIC intervention is helpful or not in suicidal patients. In French Polynesia, suicidal behaviors are often linked to difficult relationships or separations in couples, often complicated by impulsive acts, such as suicide or self harm. Education and awareness in the community about suicide and its possible precipitating factors may be one way of addressing this problem.²⁸ However, this type of population-level approach to suicide prevention is likely to be a long-term and resource-intensive effort, difficult to implement and (especially) sustain in Pacific islands. Therefore, we believe that – for the time being - it could be more profitable to focus on targeted populations, such as those with history of suicidal behavior.²⁹ In addition, the BIC program could be improved and designed in a more culturally appropriate way. The majority of participants was satisfied with the long-term support provided by telephone contacts and that no suicide cases were registered in the BIC group it seems justified to continue research efforts on this type of program. A way to improve contact could be constituted by the use of a combination of different strategies, including the use of crisis cards for first attempters, phone calls and post cards or the availability of a crisis line managed by volunteers or professionals.³⁰⁻³³ Taken together with the START experience in French Polynesia, this kind of multiple-intervention approach could integrate the complementary/alternative care or the culturally-accepted supports (like religious communities) or *traditional relaxing contact* (like aromatherapy *taurumi monoi* psychophysical

care) associated with psychiatric/psychological care. The START study approach, with its attention on cultural differences,²⁷ could contribute better to the effectiveness of these low-cost strategies in locations where services for mental conditions and emotional distress are scarce.

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Author/s:

Amadeo, S; Rereao, M; Malogne, A; Favro, P; Ngoc, LN; Jehel, L; Milner, A; Kolves, K; De Leo, D

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