

Recommendations for revision of the GPSP by the NCNP and related societies

Before the scheduled revision of the GPSP in 2012, the CSP of the NCNP and societies with experience in suicide prevention activities began recommending revisions. They were based on research since the GPSP was established. A working group founded by the CSP requested from 88 societies: (i) policy proposals for the GPSP revision and (ii) details of evidence-based suicide prevention activities to implement then or in the future. The working group prepared its recommendations for revising the GPSP and submitted them in June 2012 to the Minister of State for Suicide Prevention.²³

Here are a few recommendations in the executive summary: (i) local governments should focus resources on suicide prevention activities specific to local conditions and directly related to suicide; (ii) three types of suicide prevention – universal prevention (efforts that affect everyone in a defined population regardless of the risk of suicide), selective prevention (efforts that target subgroups at elevated suicide risk), and indicated prevention (for individuals with a risk factor or condition that puts them at very high risk)¹ – should be specified to reinforce safe and effective prevention; (iii) require proper use of evidence on suicide and suicide prevention; (iv) emphasize concrete, focused approaches to the social factors, including socioeconomic factors such as bankruptcies, heavy debt, and joblessness, underlying suicide; (v) cultivate better understanding of mental health; and (vi) reinforce monitoring schemes to support suicide survivors and people at high risk for suicide. Cooperation between the mental health and social service sectors is essential for suicide prevention.

The total revision of the GPSP in August 2012^{24,25} reflected an immense effort to obtain scientific evidence and opinions. The revised GPSP's was subtitled: "Achieving a society where nobody is driven to suicide", thus underscoring importance of practical approaches at the local level. It emphasized the need to support people who attempt suicide, and for selective and indicated prevention for high-risk groups and individuals. The revised policy noted the importance of cooperation among the central government, local governments, municipalities, and private organizations to expand support of high-risk people, possibly by linking suicide prevention policy with other policies.



Suicide statistics after 2006

Approximately 30 000 people each year died from suicide between 2006 and 2011 (see Figure 1). After 2009 the suicide rate declined, bringing the annual number of suicides in 2012 to below 30 000, for the first time since 1998.

After 2009, suicide rates among men aged 45–64 dramatically decreased (Figure 2). According to police statistics,² the number of suicides attributed to economic and livelihood issues decreased steadily from more than 8000 in 2009 to approximately 5200 in 2012. Of suicides where reasons could be determined, economic and livelihood issues remained the most frequently reported among middle-aged men. The CaO analyses of police statistics²⁶ suggested that the decreased suicide rate among middle-aged men might be in part the result of the suicide prevention policy initiated by the Basic Act and GPSP, and relevant activities under the Money Lending Business Act. Efforts by local governments and related organizations, including support for middle-aged, jobless men or multiply-indebted men, may also have contributed to the decrease. Moreover, the CaO suggested that the decrease in suicide after 2009 may be due to a decrease in suicide associated with health problems.²⁶

Nakanishi *et al* examined progress in community systems for suicide prevention and initiatives for suicide prevention by local governments using the Special Fund.²⁷ The Special Fund seemed to have successfully promoted creation of community systems for suicide prevention and local government suicide prevention effort. Although, to our knowledge, it was the first empirical study to assess the impact of the Special Fund, future research should evaluate the impact of the suicide prevention policy initiated by the Basic Act and GPSP and by the Special Fund with a focus on national and small area-specific suicide rates.

How can Japan assess the effect of initiatives on suicide rates? The Special Fund, for example, dates from fiscal year 2009, providing only a few years of data. Because of the complexity of risk factors for suicide,¹ it is very difficult to know whether changes in suicide rate are due to national suicide prevention initiatives (that is, the Basic Act and GPSP) and to the Special Fund. Furthermore, due to the low rate of completed suicides, the suicide rate should not be considered as the only primary indicator of measuring the effectiveness of suicide prevention efforts.¹ To evaluate suicide prevention policy effects on suicide in Japan and in other

countries, other outcome measures, such as suicide attempt rate and increase in mental health literacy are relevant. Help-seeking behavior among the public, as well as suicide rate, should be considered.

Conclusion

Our review suggests that the Basic Act and the GPSP facilitated Japan's suicide prevention activities by establishing a Special Fund for local governments, emphasizing networking among relevant stakeholders. Increased funding and activities led to a comprehensive, multi-sector approach²⁸ with attention to social factors underlying suicide. The essence of Japan's suicide prevention program can be found in the Basic Act: suicide prevention must be implemented as part of a society-wide effort, because suicide is not just a personal problem. Japan's suicide prevention policy has attended to social factors that contribute to suicide and has tried to increase public awareness to help develop a comprehensive prevention policy, as advocated in the WHO Mental Health Action Plan 2013–2020.²⁹ Public attention helped the government allocate substantial budgets to local governments and municipalities to promote grass-root activities by non-profit organizations.

In Japan, a serious lack of evaluation of suicide prevention activities persists. One exception is the suicide prevention program led by Oyama *et al*³ that measured improvement in detection and treatment of depression among the elderly living in a rural area in Japan. A recent study reports on a community-based multimodal intervention for suicide prevention in rural areas with high suicide rates in Japan.³⁰ As described in the revised GPSP of 2012, Japan's suicide prevention strategy should enhance evaluation and monitoring schemes.

As suicide is a global problem requiring a global dialog, the WHO published the World Suicide Report in September 2014.¹⁶ The report prescribes that (i) suicides are preventable and a comprehensive multi-sectoral suicide prevention strategy is needed; (ii) restricting access to the means for suicide, including pesticides, firearms, and certain medications, is an effective strategy for preventing suicides and suicide attempts; (iii) health-care services need to incorporate suicide prevention efforts as a core component; and (iv) communities play a critical role in suicide prevention, providing social support and follow-up care, fighting stigma, and supporting those bereaved by suicide.

We believe that Japan's experience with a comprehensive suicide prevention strategy, based on a legal foundation, can assist other countries in planning a suicide prevention policy. Japan's experience can be of particular help to countries that have undergone rapid changes in their social structure, such as sudden economic growth or population decline. The development of suicide prevention policy should be closely monitored so that other countries can benefit from the experience.

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Prevalence, associated factors and source of support concerning supportive care needs among Japanese cancer survivors

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Abstract

Background: The current study aimed to describe cancer survivors' supportive care needs in Japan, to identify associated factors of unmet needs, and to describe the source of support that are preferred and actually used by cancer survivors.

Methods: Using a web-based questionnaire, we examined unmet supportive needs and its associated factors among 628 adult Japanese cancer survivors. The questionnaire comprised 16 items representing five domains (medical-psychological, financial, social-spiritual, sexual, and physical needs).

Results: Prevalence of unmet need ranged from 5 to 18%, depending on different domains. The prevalence was high in medical-psychological and financial domains and relatively low in physical and sexual domains. Poor performance status, psychiatric morbidity and low income status were associated with unmet needs of most domains. Most cancer survivors preferred and actually sought support from their family and friends. Financial needs were preferred to be provided by non-medical professionals. Call for peer support was intense, especially for medical-psychological, social-spiritual, and sexual needs; however, peer support was not well-provided.

Conclusions: This study illustrated characteristics of Japanese cancer survivors who are likely to have unmet needs. The study demonstrated need for expanded involvement of non-medical professionals and peer support, especially in the domains of medical-psychological, social-spiritual, financial and sexual needs.

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Background

The number of cancer survivors has been increasing because of rising incidence of cancer and advances in cancer treatment [1]. This emphasizes the importance of recognizing concerns among cancer survivors.

Supportive care need is defined as 'requirement of some action or resource that is necessary, desirable, or useful to attain optimal well-being' [2]. Needs are considered unmet if required actions/resources have not been provided. Up to 30 to 50% of cancer survivors have unmet supportive needs [3–7], leading to poor quality of life and psychological distress [8]. Therefore, knowledge about their supportive needs and possible source of support is critical for better patient care and policy making.

The understudied topics in this area include the following [2–11]: First, past studies mostly addressed only specific populations in terms of time from cancer

diagnosis – either addressing survivors within 1 year from diagnosis [3,4,7] or long-term survivors [6]. Few studies have examined supportive care needs across the 'stages' of cancer survivorship (active treatment, re-entry, and long-term survivorship [12]). Second, findings have been scarce regarding the sources of support that cancer survivors use to meet their needs. Third, while supportive care services must be considered in cultural and health service contexts [13], only a few surveys have been done in Japan, limited to patients with breast and colorectal cancer, or inpatient settings [8,11,14]. In Japan, the National Basic Plan to Promote Cancer Control Programs [15] came to effect in 2007, aiming to establish basic structure of cancer treatment in the country. The plan, revised in 2012, explicitly describes quality of life of cancer survivors as an important agenda.

Therefore, the current study aimed (1) to describe cancer survivors' unmet supportive care needs in

Japan, (2) to identify its associated factors, and (3) to describe the source of support that cancer survivors prefer and actually use.

Methods

Participants and procedure

This study was conducted as a part of a larger study [16,17] that aimed to measure quality of life of short-term and long-term cancer survivors in the community. Participants were eligible if they were diagnosed with cancer within 10 years. The participants were recruited through a nationwide commercial-based website-monitoring system (INTAGE research monitor, Inc., <http://intage.co.jp>). This is a registry used for multiple purposes, ranging from scientific research to commercial marketing. The registrants were recruited through social media and self-selectively registered. The registrants are reimbursed if they participate in surveys. Approximately 1,300,000 people were registered, among whom 2059 people were registered as having been diagnosed with cancer within 10 years.

We aimed to recruit 600 cancer survivors using a stratified sampling method by gender (male:female=1:1) and time since cancer diagnosis (200 survivors each from the following three categories: within 2 years from cancer diagnosis, 2 to 5 years, and 5 to 10 years). We used a cutoff of 2 years in the assumption that patients with certain types of cancers can take more than 1 year until they complete treatment. A cutoff of 5 years is a widely used definition of long-term cancer survivors [18]. The sample size was set because majority of past studies enrolled up to 200 participants [5]. We randomly selected and invited 900 potential participants, with estimation of 60% response rate (based on the previous statistics of the database). The survey was conducted over a week in December 2012 after approval by the institutional review board of Tohoku University.

Measures

Supportive care need

Prior to this study, we reviewed existing supportive care need questionnaires and identified two well-used questionnaires as candidates – the Supportive Care Needs Survey Questionnaire [19,20] and the Cancer Survivors' Unmet Needs measure [21]. However, the former scale lacks important domains for long-term survivors (e.g. employment issues, financial burden, fertility). The latter scale is highly inclined to psycho-social and existential issues and included domains that are not relevant to most Japanese cancer survivors (e.g. parking issue). Furthermore, it has not been validated in Japan. Therefore, we decided to develop an original scale.

We developed a questionnaire based on the items of the Quality of Life Cancer Survivors Instrument (QOL-CS) [22], which was used as an outcome measure in a part of this survey. The QOL-CS comprises 41 items representing four domains (physical, social, psychological, and spiritual well-being) of cancer-specific quality of life. Because the QOL-CS contains multiple items that cover similar concepts and for the purpose of reducing burden of respondents, the research team elaborately rephrased and merged these 41 items into 16 items. We merged six items of physical symptoms (fatigue, appetite, pain, constipation, nausea and overall physical health) into a single item 'physical problems, such as fatigue, appetite, pain, constipation, nausea'. We replaced ten items on psychological well-being (e.g. coping, quality of life, anxiety and depression) by a single item 'psychological issues provoked by cancer'. We merged three items assessing level of distress during each stage of treatment (initial diagnosis, cancer treatments, and time after treatment completion) into one item 'level of distress through cancer diagnosis and treatments'. We merged four items assessing level of fear toward diagnostic tests, cancer recurrence, metastasis and secondary cancer, into a single item of 'your level of fear on diagnostic tests and cancer progression or recurrence'. We replaced seven items assessing spiritual well-being by two items of 'interpersonal and social issues' and 'religious and spiritual issues'. This item was rephrased as such because concept of spirituality was considered unfamiliar to most Japanese survivors, and meaning of life is generally described in societal and interpersonal perspectives [23]. The rest of the items were left unchanged, which included eight items on social concerns (e.g. personal relationship, sexuality, employment, and financial burden), menstrual changes or fertility, and sleep.

Responses to these questions were adopted from Zebrack's web-based need surveys [24,25]. Respondents were asked to endorse one of the following responses: (a) 'Have not used any service and have not had need in that domain', (b) 'Have already used a service and have no further need', (c) 'Have not used any service so far but would like to use in the future', and (d) 'Have used service(s) and would like to use more'. Participants who answered (a) were categorized as having no need. Participants who answered (b) or (d) were categorized as participants with 'service used'. Participants who answered (c) were categorized as having 'unmet need'.

We conducted an exploratory factor analysis in the current sample to see the structure of the questionnaire using the principal component analysis with promax rotation. Based on the scree plot, we considered five-component structure as appropriate. Those five factors were named medical-psychological needs (four items, Cronbach's alpha coefficient=0.88), financial needs (three items, 0.78), social-spiritual needs (five items, 0.83), sexual needs (two items, 0.80), and physical needs (two items, 0.62). The

Supportive care needs in Japanese cancer survivors

correlation coefficients between each factor were weak to moderate ($r=0.40-0.79$). (Supplementary table)

Source of support – preference and actual use

We asked the participants who had used any service before the survey (i.e. those who answered either (b) or (d)) about the source of support they had used. We asked those who had any needs at the time of survey (i.e. those who answered either (c) or (d)) about the kind of support they would like to use further. The participants were allowed to choose as many answers as they liked from among (1) medical professionals, (2) non-medical professionals, (3) peer support, and (4) family or friends.

Psychological distress

Psychological distress was measured using the K6 scale [26], a self-rated six-item questionnaire exploring the frequency of psychological distress during the past 30 days. The K6 scores range from 0 to 24. Those who scored 15 or more were classified as having psychiatric morbidity [27].

Perceived social support

Participants' perceived social support was assessed with the short-version Multidimensional Scale of Perceived Social Support [28]; a well-validated seven-item questionnaire with seven-point scales. The participants were divided into two groups according to the median score.

Demographic and medical characteristics

We asked the participants of their demographic and clinical information, as listed in Table 1.

Statistical analysis

First, we conducted descriptive analyses to characterize the overall study sample, summarizing the proportions of patients indicating no need, service used and unmet need in each of the 16 need areas. Ratios of service used:unmet need were calculated for each need to describe proportion of participants who received appropriate services. Also, we compared prevalence of unmet needs according to time since last treatment, using chi-squared test and Fisher's exact test where appropriate. Second, we conducted binary logistic regression analyses to explore associated factors of unmet needs. Demographic and clinical variables, psychiatric morbidity and social support, were entered as independent variables. A backward stepwise selection method was used to reduce non-significant variables from the models, with a p -value of <0.1 on the Wald statistics. Participants with missing values were excluded from this analysis. Further, we conducted descriptive analyses on source of support which the participants (1) preferred

Table 1. Demographic background ($n = 628$)

Characteristics	n	%	
Age	<50	190	30.3
	50–64	267	42.5
	≥65	171	27.2
Gender	Male	314	50
	Female	314	50
Marital status	Married	502	79.9
	Single or divorced/ widowed	126	20.1
Having child(ren)	Yes	464	73.9
	No	164	26.1
Age of youngest child ($n = 464$)	<College graduation	164	35.3
	≥College graduation	300	64.7
Household size	Living alone	70	11.1
	Two or more	558	88.9
Occupational status	Employed	277	44.1
	Unemployed	351	55.9
Annual income	<4m yen	214	34.1
	≥4m yen	368	58.6
	Unknown	46	7.3
Change in income status	No change	397	63.2
	Decreased	216	34.4
	Increased	15	2.4
Cancer site	Lung	23	3.7
	Gastrointestinal	163	26.0
	Breast	165	26.3
	Urological	126	20.0
	Gynecological	44	7.0
	Other	107	17.0
Years since diagnosis	<2 years	211	33.6
	2–5 years	208	33.1
	5–9 years	209	33.3
Performance status	0	413	65.8
	1	200	31.8
	2	13	2.1
	3	2	0.3
Received treatment (absolute number)	Surgery	530	84.4
	Radiation therapy	194	30.9
	Chemotherapy	248	39.5
	Hormonal therapy	201	32
Treatment combination	Surgery (=Sur) only	187	30
	Radiation therapy (=Rt) only	8	1
	Chemotherapy (=Cx) only	12	2
	Hormonal therapy (=Hor) only	11	2
	Sur + Rt + Cx + Hor	52	8
	Sur + Rt + Cx	39	6
	Sur + Rt + Hor	49	8
	Sur + Rt	26	4
	Sur + Cx + Hor	28	4
	Sur + Cx	104	17
	Sur + Hor	45	7
	Rt + Cx + Hor	1	0
	Rt + Cx	8	1
	Rt + Hor	11	2
Cx + Hor	4	1	
No treatment	43	7	

and (2) actually used. Data were analyzed with the SPSS version 21.0 (IBM). All the tests were two-tailed, with p -value of <0.05 .

Results

Participants' characteristics

Of 900 candidate participants, 628 responded and completed the questionnaire (response rate: 69.7%). Data of 46 survivors with missing values were excluded from the logistic analysis. The participants' mean age was 56 years. Most participants were in good performance status. Type of cancer was skewed toward breast and prostate cancers, and proportion of lung and gastric cancers were smaller than Japanese general population sample [29] (Table 1).

Prevalence of no need, service used, and unmet need

Approximately 5 to 18% of the participants had unmet need in any of the 16 areas of needs (Table 2). The prevalence was generally high in medical-psychological and financial domains and low in physical and sexual domains. Ninety-five participants (15.1%) endorsed one domain of unmet needs, and 162 participants (25.7%) endorsed two or more domains (data not shown). The ratio of service used: unmet need shows that services were relatively well used for medical-psychological needs, social-spiritual needs, and physical needs and relatively less for sexual needs (Table 2). The prevalence of unmet needs was constant after treatments (Table 3).

Associated factors of unmet needs

Table 4 shows the associated factors of unmet needs of each domain. Poor performance status and psychiatric morbidity were associated with unmet needs of most domains. Gender, marital status, cohabitants, change in income, and social support were not associated with unmet needs. Employed survivors were more likely to have unmet medical-psychological needs. Unmet sexual needs are remarkable among younger survivors, survivors of urological cancer, and survivors who passed long after surgery. Presence of young children was associated with unmet social-spiritual needs. Lower income was associated with unmet medical-psychological, financial, and social-spiritual needs. Prevalence of unmet needs did not differ among groups in terms of time since cancer diagnosis for any domain of needs.

Preference and actual use of support

In Figure 1, we illustrated both actual and preferred source of support. Most cancer survivors preferred and actually sought support from their family and friends, except for physical problems. Support from medical professionals was preferred for most of the needs except for financial needs. Non-medical professionals (e.g. social welfare, labor union, job-coordination center, professional helpers, and insurance company) were the preferred source of support for financial needs. Call for peer support was intense,

Table 2. Prevalence of no need, service used and unmet need

	No need		Service used		Unmet need		Service used : Unmet need
	n	%	n	%	n	%	
Factor 1: medical-psychological needs							
Concerns about illness or treatment	373	59.4	174	27.7	81	12.9	2.1:1
Psychological problems	386	61.5	166	26.4	76	12.1	2.2:1
Fear of recurrence	306	48.7	213	33.9	109	17.4	2:1
Concerns about family	344	54.8	209	33.3	75	11.9	2.8:1
Factor 2: financial needs							
Financial burden	338	53.8	178	28.3	112	17.8	1.6:1
Interference in employment	401	63.9	136	21.7	91	14.5	1.5:1
Interference in home activities	388	61.8	185	29.5	55	8.8	3.4:1
Factor 3: social-spiritual needs							
Personal relationship problems	408	65.0	178	28.3	42	6.7	4.2:1
Religious and spiritual problems	530	84.4	69	11.0	29	4.6	2.4:1
Support from other people	268	42.7	318	50.6	42	6.7	7.6:1
Social problems	420	66.9	123	19.6	85	13.5	1.4:1
Isolated feeling	411	65.4	154	24.5	63	10.0	2.4:1
Factor 4: sexual needs							
Menstrual changes and fertility	508	80.9	64	10.2	56	8.9	1.1:1
Sexuality	481	76.6	84	13.4	63	10.0	1.3:1
Factor 5: physical needs							
Sleep problems	460	73.2	117	18.6	51	8.1	2.3:1
Physical problems	440	70.1	144	22.9	44	7.0	3.3:1

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Table 3. Prevalence of unmet needs according to time since latest treatments

Time since last administration of each type of treatment	None	<3 months	3 months–1 year	1–5 years	5–10 years
	n (%)	n (%)	n (%)	n (%)	n (%)
Factor 1: medical-psychological needs					
Surgery	22 (22.4)	9 (16.4)	27 (28.7)	58 (22.8)	26 (20.5)
Chemotherapy	88 (23.2)	17 (28.3)	8 (21.1)	22 (21.8)	7 (14.3)
Hormonal therapy	91 (21.3)	25 (24.5)	5 (26.3)	14 (26.4)	7 (25.9)
Radiation therapy	98 (22.6)	9 (33.3)	6 (24)	21 (21)	8 (19)
Factor 2: financial needs					
Surgery	20 (20.4)	16 (29.1)	24 (25.5)	71 (28)	27 (21.3)
Chemotherapy*	85 (22.4)	21 (35)	15 (39.5)	29 (28.7)	8 (16.3)
Hormonal therapy	101 (23.7)	30 (29.4)	4 (21.1)	18 (34)	5 (18.5)
Radiation therapy	102 (23.5)	11 (40.7)	7 (28)	30 (30)	8 (19)
Factor 3: social-spiritual needs					
Surgery	19 (19.4)	10 (18.2)	17 (18.1)	59 (23.2)	25 (19.7)
Chemotherapy	74 (19.5)	15 (25)	9 (23.7)	21 (20.8)	11 (22.4)
Hormonal therapy	88 (20.6)	22 (21.6)	4 (21.1)	13 (24.5)	3 (11.1)
Radiation therapy	85 (19.6)	8 (29.6)	7 (28)	21 (21)	9 (21.4)
Factor 4: sexual needs					
Surgery	7 (7.1)	5 (9.1)	11 (11.7)	35 (13.8)	20 (15.7)
Chemotherapy	42 (11.1)	7 (11.7)	6 (15.8)	15 (14.9)	8 (16.3)
Hormonal therapy	46 (10.8)	12 (11.8)	4 (21.1)	11 (20.8)	5 (18.5)
Radiation therapy	51 (11.8)	5 (18.5)	3 (12)	11 (11)	8 (19)
Factor 5: physical needs					
Surgery	9 (9.2)	6 (10.9)	9 (9.6)	38 (15)	16 (12.6)
Chemotherapy	44 (11.6)	10 (16.7)	1 (2.6)	17 (16.8)	6 (12.2)
Hormonal therapy	53 (12.4)	15 (14.7)	1 (5.3)	7 (13.2)	2 (7.4)
Radiation therapy	52 (12)	5 (18.5)	4 (16)	12 (12)	5 (11.9)

* $p < .05$; chi-squared test and Fisher's exact test.

especially for medical-psychological, social-spiritual, and sexual needs; however, peer support was generally not well-provided.

Discussion

This survey demonstrated prevalence of unmet supportive care needs among Japanese cancer survivors as 4.6 to 17.8%, depending on different domains. These figures are lower than those of survivors who are under treatment [3–5,7] and are comparable with those of long-term cancer survivors [6]. The prevalence was high in psychological domain and low in sexual domain. Prevalence of unmet needs was generally not different either according to time since cancer diagnosis or since last administration of treatments. Cancer survivors should be examined for their unmet needs long after cancer diagnosis and completion of treatment.

Medical professionals and family/friends are the two major sources of support. In contrast, gaps between preference and actual use of peer support and support by non-medical professionals were remarkable. Call for support by non-medical professionals is remarkable for financial needs. In Japan, approximately 30% of patients with

cancer quit their job after cancer diagnosis, and the large proportion of the rest was obliged to change their work status from full-time to part-time employment [30,31]. As conceptualized in the reviews by Feuerstein *et al.* [32] and Mehnert [33], cancer survivors need multifactorial support for employment by multiple disciplines [30,31,34].

Need for peer support has long been questioned in Japan because Japanese people have been considered as less likely to share their illness experience with others [35]. Only 20% of all designated cancer centers in Japan are equipped with peer support programs as of 2013, despite the recommendation in Japanese Basic Plan to Promote Cancer Control Programs [15,36,37]. Our results argue for further promotion of peer support programs. Peer support is expected to supplement professional psychological services, where patients with cancer are often reluctant to consult [38].

Cancer survivors with unmet sexual needs are frequently not provided with any service. Sex-related issues are infrequently discussed in clinical practice in Japan [39], and increasing clinicians' awareness and clinical skills are imperative. Considering that cancer survivors perceive family and friends as an important source of

Table 4. Associated factors of unmet needs (n = 582)

	Factor 1: medical-psychological needs		Factor 2: financial needs		Factor 3: social-spiritual needs		Factor 4: sexual needs		Factor 5: physical needs	
	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI
Age (reference: ≥65) <50	—	—	—	—	—	—	2.49*	1.03–6.00	—	—
Age of youngest child (reference: ≥college graduation) <College	—	—	—	—	2.12**	1.22–3.70	—	—	—	—
Employment status: employed (reference: unemployed)	1.90**	1.23–2.94	—	—	—	—	—	—	—	—
Annual income: <4m yen (reference: ≥4m yen)	1.99**	1.27–3.13	2.26***	1.51–3.38	1.93**	1.20–3.12	—	—	—	—
Cancer site (reference: others) Urological	—	—	—	—	—	—	4.67**	1.71–12.79	—	—
Time since latest surgery (reference: no surgery) 5–10 years	—	—	—	—	—	—	3.46*	1.30–9.25	—	—
Performance status (PS): ≥1 (reference: PS = 0)	2.02**	1.31–3.13	2.25***	1.48–3.42	2.85***	1.80–4.50	—	—	4.24***	2.43–7.35
Psychiatric morbidity (K6 ≥ 15)	3.55***	2.29–5.46	1.72*	1.12–2.64	4.65***	2.95–7.35	2.59**	1.49–4.52	2.72***	1.59–4.65
Cox-Snell R2	0.114		0.108		0.160		0.068		0.087	
Nagelkerke R2	0.176		0.160		0.254		0.130		0.166	

Only significant variables were demonstrated.

OR, odds ratio.

*p < .05

**p < .01

***p < .001

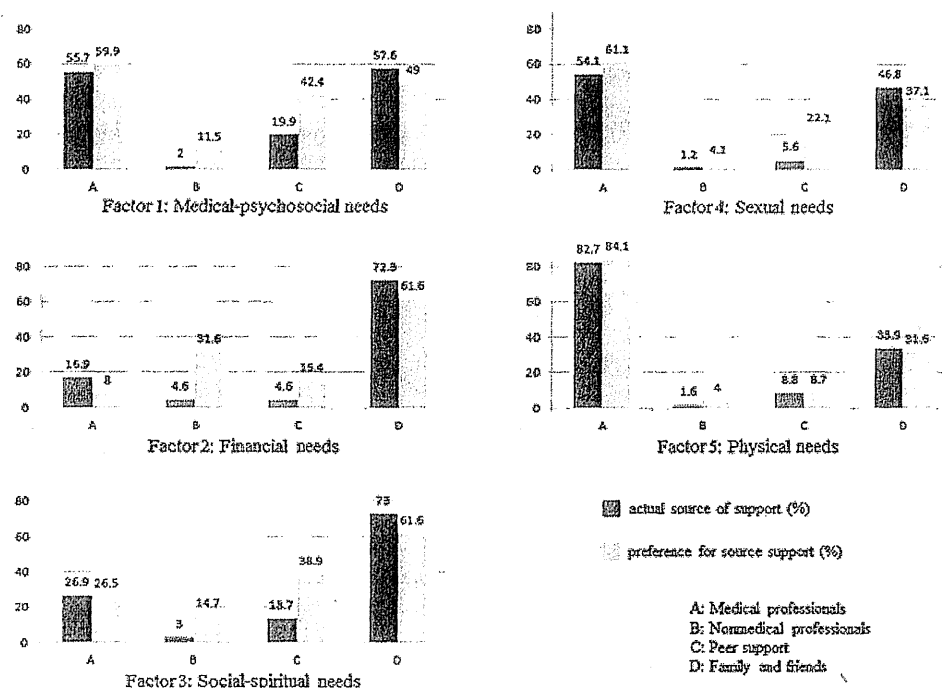


Figure 1. Preference and actual use of support

support, proactive education to family can be helpful. Topics including treatment-induced sexual challenges and intercouples communication should be covered in family education [40] and probably in peer support as well.

The strength of our study is relatively large sample size with well-balanced distribution of participants in regards to time since their cancer diagnoses. Use of web-based survey is also advantageous because this

Supportive care needs in Japanese cancer survivors

enabled to access cancer survivors who do not come to clinics on regular basis.

The most important study limitation is representativeness of the sample. The participants were limited to those who have internet literacy and those who were self-selectively registered to a database. Distribution in age and type of cancers is slightly different from that of general cancer population in Japan. The participants were limited to those in good performance status; therefore, we may have underestimated unmet needs. No difference was made between survivors during and past primary treatment. The second limitation is that our need assessment instrument has not been validated. The items of interest were selected somewhat arbitrarily, although they were derived from a validated quality-of-life instrument and have been selected on agreement of multidisciplinary study team. The questionnaire lacked items on information needs, which have been listed as an important domain of needs in other need instruments. Majority of participants endorsed multiple domains of unmet needs, suggesting need for investigating the impact of different need combinations. Finally, the cross-sectional design provides no information on causal relationship. In particular, variables of time since cancer diagnosis/last treatment should be examined further in longitudinal studies.

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Conclusions

Despite its limitations, our study is noteworthy because this is the first study in Japan that assessed unmet needs of cancer survivors along with preference and usage of service. The study depicted survivors at risk for unmet needs in different domains. The study also highlighted need for continued and expanded involvement of non-medical professionals and peer support in the care of cancer survivors, especially in the domains of medical-psychological, social-spiritual, financial and sexual needs.

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Conflict of interest

The authors have declared no conflicts of interest.

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher's web site.

Regular Article

National strategy for suicide prevention in Japan: Impact of a national fund on progress of developing systems for suicide prevention and implementing initiatives among local authorities

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Aim: In Japan, the Cabinet Office released the 'General Principles of Suicide Prevention Policy' in 2007 and suggested nine initiatives. In 2009, a national fund was launched to help prefectures (the administrative divisions of Japan) and local authorities implement five categories of suicide-prevention programs. This paper examines the impact of the national fund on the establishment of the systems for suicide prevention and the implementation of these initiatives among local authorities.

Methods: The present study included 1385 local authorities (79.5%) from all 47 prefectures that responded to the cross-sectional questionnaire survey.

Results: Improved suicide-prevention systems and the implementation of nine initiatives in April 2013 were observed among 265 local authorities (19.1%) that implemented 'Training of community service providers' and 'Public awareness campaigns'; 178 local authorities (12.9%) that implemented 'Face-to-face counseling', 'Training of community service pro-

viders' and 'Public awareness campaigns'; and 324 local authorities (23.4%) that implemented 'Trauma-informed policies and practices'. There was no significant difference in suicide-prevention systems and the implementation of nine initiatives between 203 local authorities (14.7%) that implemented only 'Public awareness campaigns' and 231 local authorities (16.7%) that did not implement any suicide-prevention programs.

Conclusion: The results of our study suggest that the national fund promoted the establishment of community systems for suicide prevention and helped implement initiatives among local authorities. The national suicide-prevention strategy in Japan should explore a standard package of programs to guide community suicide-prevention efforts with a sustained workforce among local authorities.

Key words: health policy, Japan, local government, suicide.

SUICIDE IS ONE of the leading causes of death worldwide for all age groups. Nearly one million

people die from suicide every year.¹ National suicide-prevention strategies have been developed in several countries, including Australia,² Canada,³ England,⁴ Finland,^{5,6} Norway,⁷ Scotland,^{8,9} Sweden,¹⁰ and the USA.¹¹ Historically, Japan has had a higher suicide rate than these countries.¹² In 2011, the suicide rate per 100 000 people was 20.9 in Japan and 6.7–16.4 in the aforementioned Western countries. Although some small-area trials have been demonstrated to reduce suicide rates,^{13,14} overall suicide rates have

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remained high following a striking increase in 1998 across the nation.^{15,16}

In 2006, the Basic Act for Suicide Prevention was enacted to clarify the responsibilities of all stakeholders, including local authorities, employees, and citizens, for preventing suicide in Japan. In 2007, the Cabinet Office released the 'General Principles of Suicide Prevention Policy', which was aimed at reducing the overall suicide rate by 20% over the next decade.^{15,17} The General Principles of Suicide Prevention Policy include nine initiatives and 48 objectives. The nine initiatives consist of the following: (i) research on the prevalence, risk, and protective factors for suicidal behaviors; (ii) increased public awareness; (iii) human resources for early intervention; (iv) community efforts for mental health; (v) better access to mental healthcare; (vi) supportive community environments; (vii) prevention of suicide reattempts; (viii) support for persons bereaved by suicide; and (ix) enhanced public–private partnerships. Additionally, the Cabinet Office launched a national fund to help prefectures (the administrative divisions of Japan) and local authorities implement suicide-prevention programs during a 3-year period from 2009 to 2011 (which was extended to 2012). The fund is allocated to each prefecture, which can then implement suicide-prevention programs and/or distribute the fund to local authorities. Each prefecture and local authority voluntarily determines the components of the suicide-prevention programs from five categories. The five categories of programs include the following: (i) face-to-face counseling; (ii) tele-counseling; (iii) training of community service providers; (iv) public awareness campaigns; and (v) trauma-informed policies and practices (Fig. 1). 'Face-to-face counseling' programs include screening for mental health needs and making appropriate referrals. The 'Trauma-informed policies and practices' program includes 'reinforcement models', in which local authorities adopt a flexible approach based on the situation in each area, such as suicide hot spots and railway suicides.

The five categories of suicide-prevention programs do not directly correspond with the nine initiatives of the General Principles of Suicide Prevention Policy. Together, these suicide-prevention programs aimed to endorse progress in community systems with respect to suicide prevention among local authorities. In 2013, the Council for Evaluation on Suicide Prevention Programs was established to provide an evaluation of the progress and outcomes from the

national fund and support for updating the national suicide-prevention strategy. The Council indicated that the 4-year period may be too short to monitor the changes in suicide rates because long-term programs, not short-duration interventions, have been more effective in reducing suicide rates in the community.¹⁸ Policy evaluation at this stage should examine the implementation process of the suicide-prevention programs by the national fund. Therefore, the outcome measures here were defined as the progress on developing the systems and implementing the nine initiatives for suicide prevention. This paper describes the results from the task force within the Council and examines the impact of the national fund on the establishment of systems, and on the implementation of the nine initiatives for suicide prevention. This study is the first nationwide examination to investigate the impact of a national suicide-prevention strategy on small areas within Japan as well as in other countries.

METHODS

Design and subjects

In this study, we used a cross-sectional design with a 4-week investigation period from 1 to 30 April 2013. The Center for Suicide Prevention, National Institute of Mental Health (NIMH), National Center of Neurology and Psychiatry (NCNP) mailed a paper questionnaire on 1 April 2013, to each local authority being assessed. The Center sent reminders by mail to the local authorities that did not return the questionnaire by 30 April 2013.

The questionnaire targeted all of the 1742 Japanese local authorities (cities, special wards, towns and villages) as of 1 April 2013. The local authority is the administrative unit below the prefecture level ($n = 47$) in Japan. Japanese cities are defined as having a population of more than 50 000 people. Towns and villages are smaller than cities. Each of the special wards is legally equivalent to a city. Information on the department responsible for suicide prevention in each local authority was obtained from the prefecture. We asked each department to choose one appropriate respondent to answer the questionnaire by 30 April 2013. The questionnaire survey assessed the establishment of systems for suicide prevention, and the implementation of the nine initiatives in the local authorities.

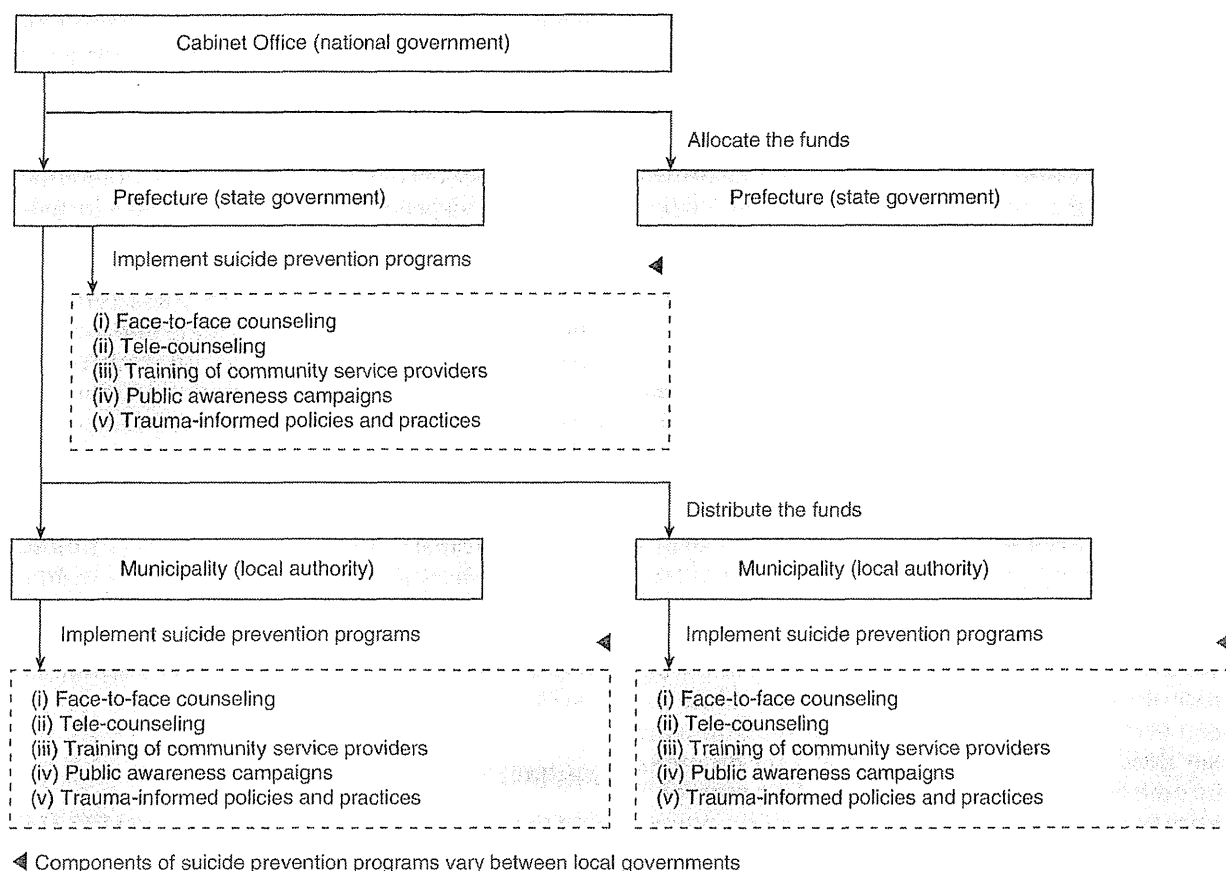


Figure 1. The Cabinet Office allocates a national fund to each prefecture (the administrative division of Japan), which can then implement suicide-prevention programs and/or distribute the fund to municipalities (local authorities). Each prefecture and local authority voluntarily determines the components of the suicide-prevention programs from five categories. Therefore components of suicide-prevention programs vary between local authorities.

Measures

The section of the questionnaire that focused on the establishment of suicide-prevention systems consisted of three items: (i) an organization across multiple departments responsible for suicide prevention in the local authority; (ii) a community network for suicide prevention involving the third sector; and (iii) a local action plan for suicide prevention. Each item asked about the presence of the system in April 2013. These three items were derived from key components of successful programs for suicide prevention as identified by Fountoulakis *et al.*¹⁸

Our assessment also collected information on the implementation of the nine initiatives that both prefectures and local authorities are required to

implement according to the 'General Principles of Suicide Prevention Policy'. Each item asked about the implementation of the activity in the 2012 fiscal year (from April 2012 to March 2013). We used the total number of implemented items for multivariate analyses.

Information on the implementation of suicide-prevention programs in the local authorities was made available from the Cabinet Office for 2010–2012. Because the national fund was launched in mid-2009, we calculated the total budget implemented during the 3-year period. The total budget showed high correlations with the total population (Pearson's $r = 0.79–0.80$) and the total number of public officers (Pearson's $r = 0.75–0.76$) between 2009 and 2012. Therefore, the implementation of

each type of suicide-prevention program was coded into two categories: '0 = no budgets (not implemented)' or '1 = implemented'. With respect to the prefectures, most prefectures implemented suicide-prevention programs: 46 (97.9%) employed 'face-to-face counseling', 45 (95.7%) implemented 'tele-counseling', and 47 (100%) implemented 'training of community service providers', 'public awareness campaign', and 'trauma-informed policies and practices'. Therefore, we excluded the implementation of programs in prefectures from the analysis.

Suicide data were made available from the National Police Agency for 2009–2012. Each suicide was assigned to one of the 1742 local authorities according to the victim's place of usual residence on the date of death. The 1742 local authorities reported 31 924 (98.3%) out of all 32 485 suicide cases in 2009, 30 822 (98.4%) out of 31 334 in 2010, 30 013 (98.8%) out of 30 370 in 2011, and 27 240 (98.7%) out of 27 589 in 2012.

To collect information on the demographic characteristics for 2009–2012, we used the following national statistics of the Ministry of Internal Affairs and Communications: the total population from the Basic Resident Register and Population; the per capita income from the System of Social and Demographic Statistics; and the total number of public officers from the Survey on Wages of Local Government Employees.

Ethical considerations

The study was approved by the Cabinet Office, and the Ministry of Health, Labor, and Welfare. The study did not collect any personal information.

Statistical analysis

Because suicide-prevention programs consisted of five categories, there were 32 (2^5) possible patterns of implementation. The frequency of each pattern was calculated. Therefore, local authorities were categorized according to frequent patterns of implementation. The baseline demographic variables (2009) of local authorities were compared between the categories.

Multiple Poisson regression analysis for cross-sectional time-series (panel) data was conducted using the annual number of suicide cases by sex as a dependent variable. The model included the implementation of suicide-prevention programs. Demo-

graphic variables were also entered as time-series variables. The annual numbers of suicide cases were treated as dependent variables, with the natural logarithm of the population number by sex as an offset.

Binomial logistic regression was employed using the presence of community-based suicide-prevention systems as dependent variables. The model included the implementation of suicide-prevention programs and baseline demographic variables.

Finally, linear regression analysis was performed using the implementation of the nine initiatives as a dependent variable. The model also entered the implementation of suicide-prevention programs and baseline demographic variables as independent variables.

Because data were taken from local authorities nested in a prefecture, multilevel modeling was used for multivariate analyses. The models included random effects for prefecture to account for within-prefecture correlations. All statistical analyses were conducted using STATA 13.0 for Windows (StataCorp, College Station, TX, USA). The 2-tailed significance level was set at 0.05.

RESULTS

Of the 1742 local authorities targeted, 1385 (79.5%) replied to the questionnaire survey. The final sample for analysis consisted of the 1385 respondent municipalities. The respondent department of each municipality consisted of the following: a health section ($n = 743$), a welfare section ($n = 226$), a 'health and welfare' section ($n = 383$), a policy management section ($n = 6$), or a non-specified department ($n = 27$). The 1385 local authorities in 2009 had a larger population size ($t [1690.97] = 8.15$, $P < 0.001$), a higher per capita income ($t [719.62] = 7.58$, $P < 0.001$), a greater number of public officers ($t [1739.82] = 7.87$, $P < 0.001$), and a greater number of male ($t [1660.51] = 8.15$, $P < 0.001$) and female ($t [1634.97] = 7.37$, $P < 0.001$) suicide cases than the 357 non-respondent authorities.

Suicide prevention programs under the national fund

A majority of the respondent local authorities ($n = 1083$, 78.2%) implemented a 'public awareness campaign'. One-half of the local authorities ($n = 814$, 58.8%) implemented the 'training of community

Table 1. Implementation of suicide-prevention programs among the 1385 local authorities from 2010 to 2012

Pattern of implementation	<i>n</i>	%
'Training of community service providers' and 'Public awareness campaigns'	265	19.1
No program implemented	231	16.7
'Public awareness campaigns' only	203	14.7
'Face-to-face counseling', 'Training of community service providers' and 'Public awareness campaigns'	178	12.9
'Face-to-face counseling', 'Training of community service providers', 'Public awareness campaigns' and 'Trauma-informed policies and practices'	129	9.3
'Training of community service providers', 'Public awareness campaigns' and 'Trauma-informed policies and practices'	91	6.6
Other 26 patterns of implementation	288	20.8

service providers'. One-third of the local authorities ($n = 507$, 36.6%) implemented 'face-to-face counseling'. A quarter of the local authorities ($n = 324$, 23.4%) implemented 'trauma-informed policies and practices'. Few authorities ($n = 132$, 9.5%) implemented 'tele-counseling'. The total budget reached 2 636 248 210 yen during the 3-year period. The number of local authorities that implemented suicide-prevention programs increased from 747 in 2010 to 1152 in 2012.

Among 32 possible patterns of implementation, the highest frequency was observed in the combined implementation of 'training of community service providers' and 'public awareness campaigns'. A frequency of 10% and more was observed only in four patterns of implementation (Table 1). 'Trauma-informed policies and practices' were generally implemented in combination with other categories of suicide-prevention programs ($n = 320$, 98.8%). Therefore, local authorities were divided into the following six categories: (i) 'training of community service providers' and 'public awareness campaigns'; (ii) 'public awareness campaigns' only; (iii) 'face-to-face counseling', 'training of community service providers', and 'public awareness campaign'; (iv) 'trauma-informed policies and practices' (and others); (v) other patterns of implementation; and (vi) no suicide-prevention programs implemented.

Baseline demographic characteristics and suicide rates from 2009 to 2012

The local authorities that implemented 'trauma-informed policies and practices' exhibited a larger population size, a greater number of public officers,

and a greater number of male and female suicide cases in 2009 than those in other categories of implementation. The local authorities that did not implement any suicide-prevention programs indicated a lower per capita income (Table 2).

The results of the multilevel multiple panel Poisson regression analyses demonstrated a significantly smaller annual number of male suicide cases in the local authorities that exhibited a higher per capita income. The number of suicide cases was not significantly different between the categories of implementation of suicide-prevention programs (Table 3).

Community-based suicide-prevention systems and nine initiatives

The results of the multilevel binomial logistic regression analyses revealed a greater likelihood of the establishment of systems for suicide prevention in local authorities that implemented suicide-prevention programs compared with those that did not implement any suicide-prevention programs. The establishment of a community network and local action plan was significantly higher in the local authorities that had a greater number of public officers (Table 4).

The results of the multilevel linear regression analysis demonstrated that a larger number of the nine possible initiatives were put into operation in local authorities that implemented suicide-prevention programs compared with those that did not implement any suicide-prevention programs. The implementation of the nine initiatives was significantly greater in the local authorities that had a

Table 2. Baseline demographic characteristics of the 1385 local authorities

Mean (SD) at 2009	T&P (n = 265)	P (n = 203)	F&T&P (n = 178)	TI (n = 324)	Other (n = 184)	None (n = 231)	F (5)	P-value
Total population	69528.5 [†] (92598.4)	46572.6 [†] (67029.7)	81406.2 ^{§‡} (115044.1)	175157.4 ^{†,‡,§,††,‡‡} (366905.3)	58423.3 ^{††} (80326.9)	24320.8 ^{§,‡‡} (32775.4)	21.75	<0.001
Annual per capita income, million yen	1.2 [†] (0.4)	1.2 [†] (0.5)	1.2 [§] (0.4)	1.2 [§] (0.4)	1.2 (0.4)	1.1 ^{†,‡,§,†} (0.3)	4.12	0.001
Number of public officers	646.2 [†] (747.5)	456.6 [†] (602.0)	767.2 [§] (943.4)	1655.4 ^{†,‡,§,††} (3732.5)	529.6 [§] (633.6)	277.3 ^{††} (334.9)	19.06	<0.001
Number of male suicide cases	21.5 [†] (16.8)	8.5 [†] (12.3)	14.4 ^{§,†} (18.8)	30.8 ^{†,‡,§,††,‡‡} (61.4)	10.6 ^{††} (14.8)	4.3 ^{§,‡‡} (6.5)	23.32	<0.001
Number of female suicide cases	4.9 [†] (7.0)	3.3 [†] (5.5)	5.8 [§] (8.0)	12.8 ^{†,‡,§,††} (27.2)	4.1 [†] (5.5)	1.8 ^{††} (2.7)	21.52	<0.001

^{†,‡,§,††,‡‡}Significant difference between the same symbol by Tukey's ad hoc test ($P < 0.05$).
 F&T&P, 'Face-to-face counseling', 'training of community service providers', and 'public awareness campaigns'; Other, other patterns of implementation; P, 'Public awareness campaigns' only; T&P, 'Training of community service providers' and 'Public awareness campaigns'; TI, 'Trauma-informed policies and practices' (and others).

Table 3. Multiple Poisson regression analyses for cross-sectional time-series (panel) data of number of suicide cases from 2009 to 2012 in the 1385 local authorities

	Coefficient (95%CI)	
	Male	Female
Constant value	-7.66 (-7.77-7.54)	-8.86 (-9.03-8.69)
Demographic characteristic (time-series)		
Per capita income	-0.20* (-0.25-0.14)	-0.28 (-0.10-0.04)
Natural logarithm of the number of public officers	0.004 (-0.01-0.02)	0.01 (-0.01-0.03)
Suicide-prevention programs (none = 0)		
'Training of community service providers' and 'Public awareness campaigns'	0.02 (-0.06-0.09)	-0.07 (-0.19-0.05)
'Public awareness campaigns' only	0.05 (-0.03-0.13)	-0.05 (-0.18-0.07)
'Face-to-face counseling', 'training of community service providers', and 'public awareness campaigns'	-0.02 (-0.10-0.06)	-0.06 (-0.18-0.06)
'Trauma-informed policies and practices' (and other)	0.01 (-0.07-0.09)	-0.04 (-0.16-0.08)
Other patterns of implementation	0.04 (-0.05-0.12)	-0.07 (-0.20-0.05)
Random effect		
Intercept (Prefecture)	0.11 (0.08-0.15)	0.14 (0.10-0.19)
Fitness of the model		
χ^2 (7)	53.24	4.71
Log likelihood	-3337.63	-2555.74
P-value	<0.001	<0.001
Akaike's information criterion	6693.26	5129.48

* $P < 0.05$.
 Offset = natural logarithm of the total population of each sex.
 CI, confidence interval.