Community-based Intervention for the Prevention of Elderly Suicide in Japan: The Effect of Depression Screening with Appropriate Follow-up on Male and Female Risk

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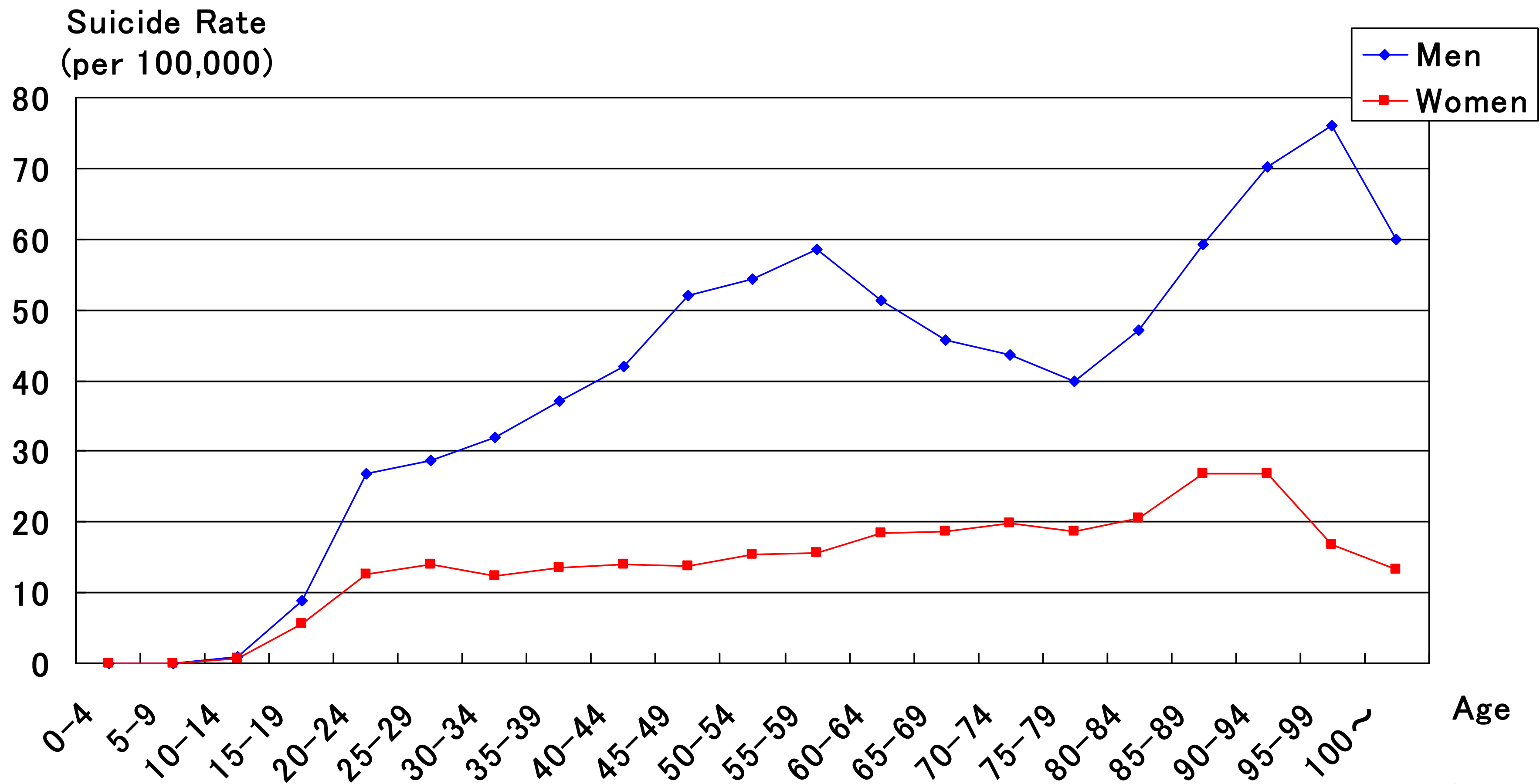
Suicide Rate by Age in Japan, 2007



Risk Factors for Late-life Suicide in Japan

- Psychiatric illness (most likely, depression)
- Physical illness or functional impairment
- Social isolation or family discord

These factors are the same as in most other countries (Conwell et al., 2008) .

They make it difficult for elderly people to seek help from others.

Thus, mental health outreach is necessary for effective suicide prevention.

Our community project on the identification and treatment of depressed adults

—What impacts the suicide rate of the elderly?

- Our three types of community-based programs for elderly suicide prevention:

1. Depression screening and psychiatric follow-up

2. Depression screening and general follow-up

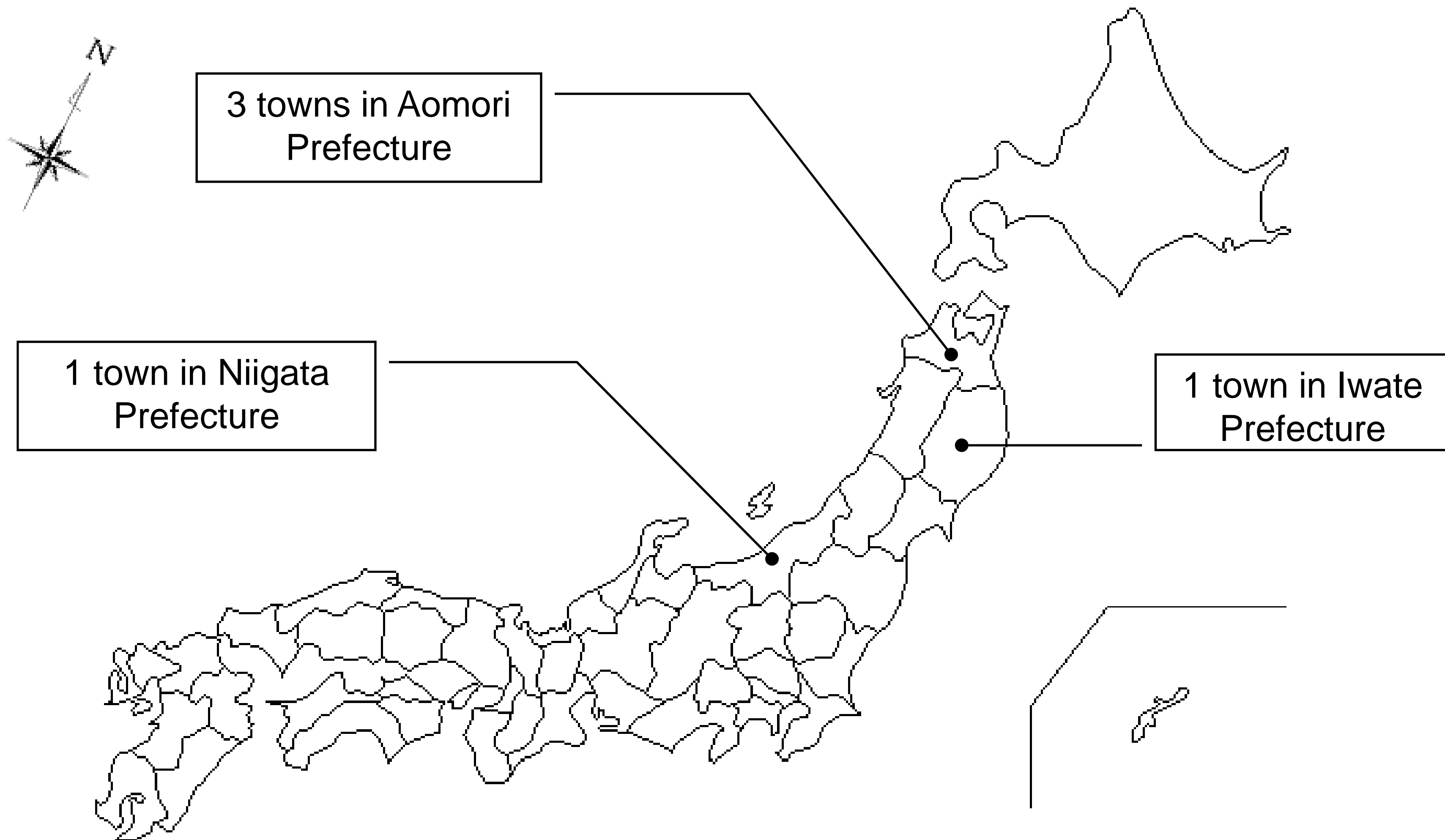
3. Group activities and psycho-education for depression without screening

Three studies used depression screening and follow-up with psychiatric care, which impacted suicide risk in both elderly men and elderly women.

(Takahashi et al., 1998; Oyama et al., 2004; Oyama et al., in press)

- Setting: rural, agricultural areas with populations of 5,000-40,000
- Target population: 1,000-14,000 residents aged 60+ or 65+ in areas with a high suicide rate (>120/100,000 in men; >50/100,000 in women)
- Design: 2-10 year quasi-experimental studies with neighboring references and the regional trend
- Intervention types: universal, selective, and indicated

Location of intervention areas in Japan



Intervention Program

Common principal components:

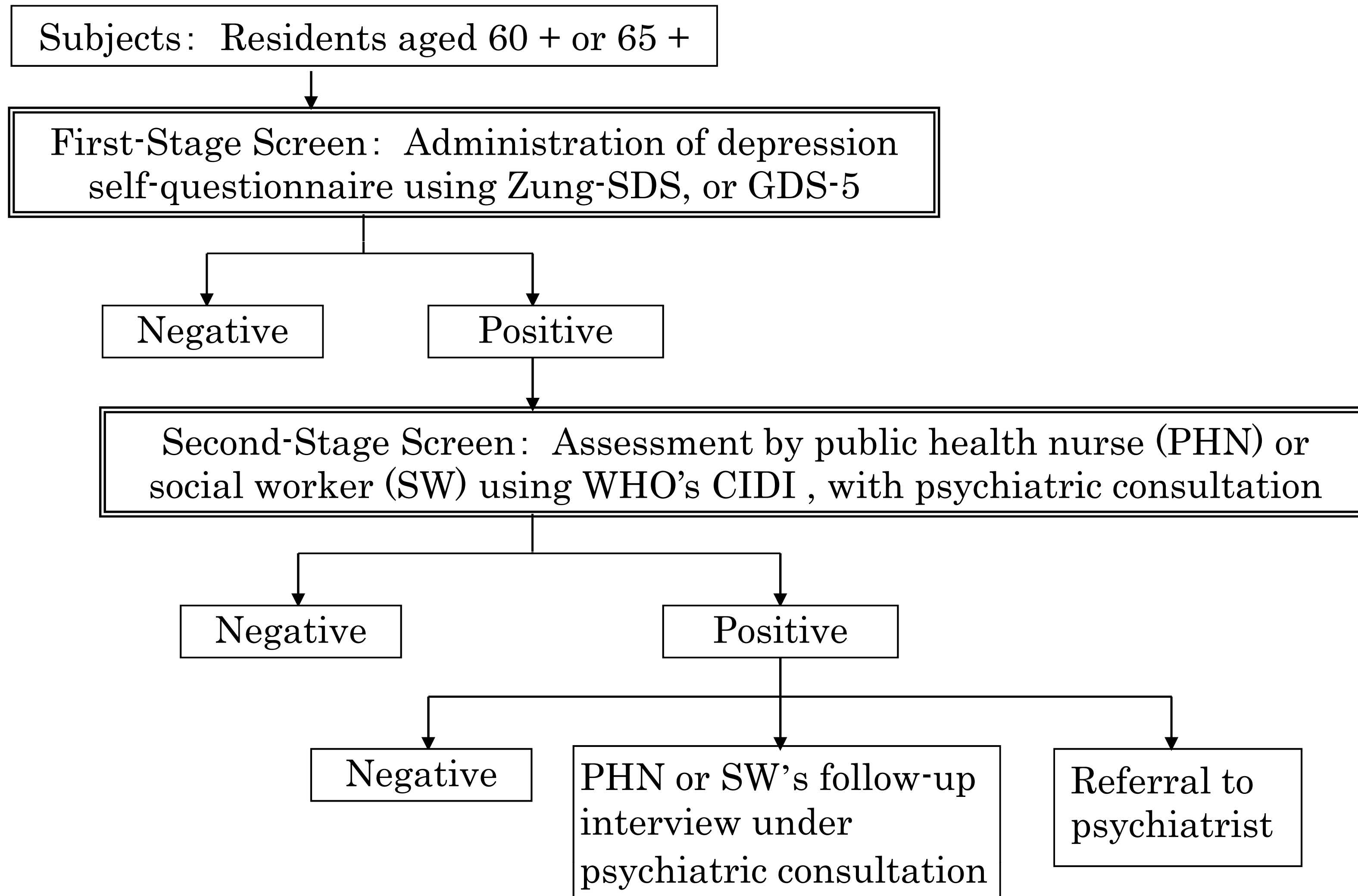
• Two-step screening for depressive syndrome and follow-up with psychiatric care

- 1st-stage screening for depressive symptoms using self-questionnaire with help by volunteers, once every 3-5 years for each resident

- 2nd-stage screen for depressive syndrome using structured interviews

- Follow-up intervention including brief supportive counseling under psychiatric consultation by public health nurse (PHN) or by social worker (SW), or if needed, a psychiatrist's care

Flow chart of two-step depression screening



Intervention Program (cont.)

Common accessory components:

1) Mental health workshops (psycho-education)

- Awareness, signs and symptoms, and treatment of depression
- Access to mental health care service
- Taboo reinforcement: “Suicide is an avoidable death.”

Individual accessory components:

2) Group activity
   Low participation rate

3) Anonymous survey
   25% random selection, using SDS or CES-D

Depression Screening & Psychiatric Follow-up

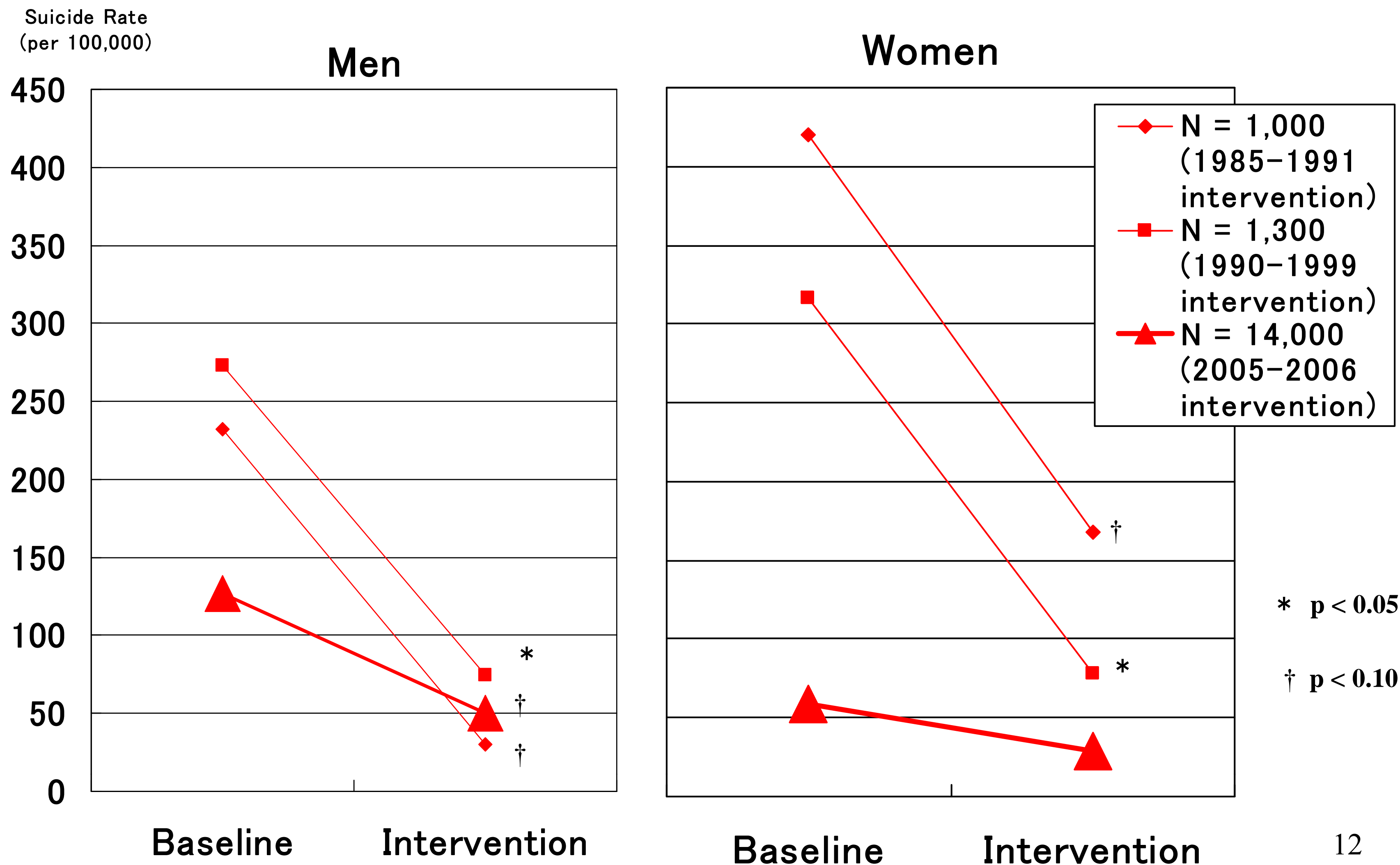
A Mental Health Workshop

Statistical Analysis

- Assessment of change in completed suicide risk associated with program exposure: Age-adjusted IRR (incidence rate ratio) between baseline and intervention period, using the Mantel-Haenszel test

- Evaluation of trend effect on risk change: A ratio of two IRRs in each intervention area and region, using a general loglinear model (e.g. Agresti, 2002)

Change in suicide rates for elderly (aged 60+ or 65+) before and after interventions with depression screening & psychiatric follow-up



Empirical findings from our process evaluation of two-step depression screening:

What made the community-based depression screening succeed?

Possible necessary conditions that can lead to successful suicide prevention in elderly men and women:

1. The process of a two-step screening & psychiatric follow-up

1.1. First-stage screening for depressive symptoms

- Implementation: once every 3-5 years
- Participation rate: 50-70 % or more for one-year implementation
- Positive rate: 10-20% when using Zung's Self-rating Depression Scale (SDS); 20-30% when using Geriatric Depression Scale-5 items (GDS-5)

Empirical findings from our process evaluation of two-step depression screening (cont.)

1.2. Second-stage screening for depressive syndrome

- Participation rate: 80 % or more for one-year implementation
- Positive rate: about 5% or less when using a structured interview (Composite International Diagnosis Interview Ver.3) by trained paramedical staff

1.3. Psychiatric follow-up

- Rate of referral to psychiatric care: about 1%, or less
- Brief supportive counseling by PHN, if needed, with psychiatric consultation: about 5%, or less

Empirical findings from our process evaluation of two-step depression screening (cont.)

2. Target population and staff assigned to the screening program

2.1. Target population for one-year implementation

- Around 2,000 (1,500- 5,000) elderly residents by a leader and staff
  - in a rural area with a high suicide rate (>100/100,000 in elderly men [commonly, aged 65+]; >50/100,000 in elderly women)

2.2. Full-time staff

- Leader: a municipal public health nurse (PHN)
- Others: 2 or 3 PHNs

2.3. Part-time staff

- A psychiatrist (assessment, consultation)
- 2 or 3 psychiatric social workers (assessment at the 2nd stage screen)

Empirical findings from our process evaluation of two-step depression screening (cont.)

3. Expected outcome

- In a 2-5 year program implementation with a total target population of less than 14,000 or less elderly residents (a screening targeting 1,500-5,000)
- Suicide rate reduced

  to 30-75 /100,000 for elderly men

  to 30-70 /100,000 for elderly women

Two studies used depression screening and follow-up with primary care, which impacted suicide risk in elderly women but not in elderly men. (Oyama et al., 2006a, 2006b)

- Setting: rural, agricultural areas with populations of 4,000-7,000
- Target population: 1,200-1,600 residents aged 65+ in areas with a high suicide rate (>200 /100,000 in both men and women)
- Design: 6-10 year quasi-experimental studies with neighboring references and the regional trend
- Intervention types: universal, selective, and indicated

Intervention Program

Individual principal components:

- Two-step depression screening and follow-up with primary care

- Two-step screening implemented every year, with less psychiatric consultation
- Follow-up by a general practitioner or a PHN, with less psychiatric consultation

Intervention Program (cont.)

Common accessory components:

1) Mental health workshop (psycho-education)

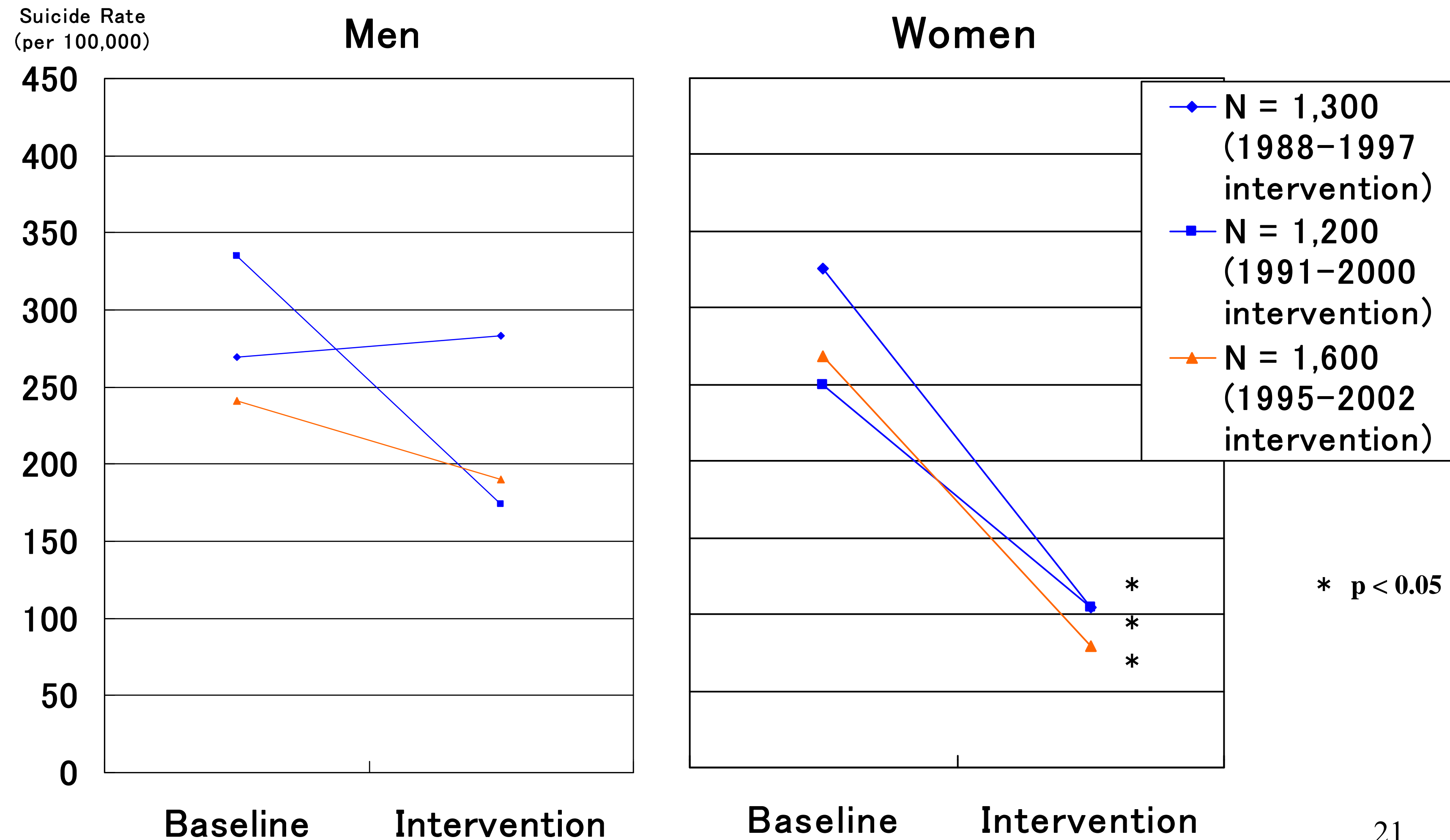
- Awareness, signs and symptoms, and treatment of depression
- Access to mental health care services
- Taboo reinforcement not implemented

2) Group activities

One study used group activities, psycho-education, and self-assessment of depression, including no screening. (Oyama et al., 2005)

- Primary prevention programs
- Impacted suicide risk in elderly women, but not in elderly men
- Universal intervention

Change in suicide rate for elderly (aged 65+) before and after intervention with depression screening & general follow-up (blue) or primary prevention (orange)



General population strategies in minimizing progress to suicide (based on the models by Jenkins & Singh [2000] and by Mann et al. [1999]) and studies evaluating community-based programs for elderly suicide prevention in Japan

Step in pathway to suicide	Principal risk factors	Specific action to prevent the step	Community-based program for elderly suicide prevention		
			Depression screening & psychiatric follow-up (N=3)	Depression screening & general follow-up (N=2)	Group activity & psycho-education (N=1)
1. Factors causing depression	•Life events •Chronic social stress •Lack of social support	•Policy on employment, social welfare, housing	○	○	●
		•School/ workplace/ community mental health promotion			○
		•Action on alcoholism/ physical illness and disability			
		•Media guidance, public education	○	○	●

● Element was included and strongly stressed.

○ Element was included.

General population strategies in minimizing progress to suicide and studies (cont.)

Step in pathway to suicide	Principal risk factors	Specific action to prevent the step	Community-based program for elderly suicide prevention		
			Depression screening & psychiatric follow-up	Depression screening & general follow-up	Group activity & psycho-education
2. Depressive thought		•Detection of high-risk groups •Professional training about assessment and treatment	●	●	
3. Hopelessness Suicide ideation		•Risk management in primary care •Building safety into routine assessments		●	

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General population strategies in minimizing progress to suicide and studies (cont.)

Step in pathway to suicide	Principal risk factors	Specific action to prevent the step	Community-based program for elderly suicide prevention: Depression screening & psychiatric follow-up	Depression screening & general follow-up	Group activity & psycho-education
4. Suicidal planning	•Contagion?	•Management of suicidal people in primary and psychiatric care	●	○	
		•Taboo reinforcement	●		
5. Impulsivity	•Low serotonergic activity •Traits (including male vulnerability)	•Psychiatric care management (e.g. psychiatric consultation or medication)	●		
7*. Suicidal act		•Crisis intervention	○	○	
		•Follow-up on suicide attempters	○	○	
Outcomes by gender		Reduction in elderly suicide risk	Men & Women	Women	Women?

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(*Step 6, access to lethal means, was outside the scope of our study.)

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Conclusion

Why did the depression screening with psychiatric follow-up have an impact on the suicide rate of elderly men?

Possible explanations of the effectiveness:

- Psychiatric follow-up (including prompt referral to psychiatric care), which can ameliorate suicidal impulse, to which men are more vulnerable than women

- High participation rate (50% or more) of screening in elderly men by using social support of the community

- Accurate detection of male depression in screening under psychiatric consultation

- Taboo reinforcement and/or the Hawthorne effect, which can ameliorate suicidal planning and inhibit the contagion effect. The male vulnerability to impulsivity after suicidal planning may be affected.

References

- Oyama H. et al.：Effect of community-based intervention using depression screening on elderly suicide risk: a meta-analysis of the evidence from Japan. Community Ment Health J 44：311-320，2008.
- Oyama H. et al.：A community-based survey and screening for depression in the elderly: the short-term effect on suicide risk in Japan. Crisis (in press).

Thank you

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