Tobacco Control Measures and Their Evaluation

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Abstract: Tobacco control measures were reviewed in general and comprehensively classified into four groups, i.e. self help method, clinic based method, group based method, and community wide method, in terms of their major objectives and prominent methodological characteristics. Each method was further divided into several sub-categories and was briefly described in terms of its prominent features and the essential environmental factors necessary to yield good results. Of these, the Five A’s method, which is easily applicable in various daily clinic settings, is characterized as being one of the best methods available since it is highly cost-effective in terms of both cost-per-quit and cost-per-year-of-life-saved. In terms of recent global trends, this article emphasizes the fact that increasing attention is being focused on the community wide method, including national and international approaches. Moreover, the significance of active and comprehensive support for tobacco control measure by medical and co-medical professionals is highlighted in response to the Framework Convention on Tobacco Control sponsored by WHO. Methods for evaluating each tobacco control method were briefly reviewed.

Key words: Self-help method; Smoking control clinic; Nicotine replacement method; “Five A’s” method

Introduction

As a member of the Japan Medical Association in the field of public health, the present author considers it important to be aware of “tobacco controls” in a broad sense. Accordingly, this article offers a consolidated look at the relationships among the various guidelines and methods targeting tobacco control in the general sense (tobacco control measures), followed by a review of each of the tobacco control methods and concludes with a brief review of the methods of evaluating their effectiveness.
**The Position of Smoking Control Methods in Tobacco Control Measures**

“No Smoking” is a caveat used to mean “Do not smoke” in the narrow sense of the word smoking cessation, however, the word “No Smoking” used in the national health promotion movement “Healthy Japan 21” advocated by the Ministry of Health, Labor and Welfare (Japan MHLW) means to quit smoking. One of the aims of “Healthy Japan 21” is the promotion of tobacco control in its broad sense, which is the combination of smoking cessation, and preventing the acquisition of a smoking habit, and to separate smoking/non-smoking areas. In a similar way, the objectives of the various tobacco control measures included in the World Health Organization (WHO) Framework Convention on Tobacco Control, which is progressing toward ratification in 2003, are smoking prevention, smoking cessation, and the promotion of smoke-free environments. These are all interrelated, thus it is important to consider tobacco control in its broad sense as well as tobacco control measures as a whole. The various measures are outlined in the table on the following page.

To a certain extent it is possible to categorize tobacco control measures according to their target or the behavioral scientific theory on which they are founded. However, since the 1980s when it became clear that a tobacco control method based on a single behavioral theory had only limited efficacy, the trend has shifted toward developing tobacco control methods based on several theories, and a number of theories and models that encompass the transtheoretical model, diffusion theory, and the PRECEDE-PROCEED model have been applied to the planning, implementation, and evaluation of the various tobacco control methods, and reports have been published documenting their effectiveness.

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**Outline of Tobacco Control Measures**

1. **Self-Help Method**

This method represents individual efforts to quit smoking and comprises self-management techniques, i.e. self-care, self-control, and self-monitoring that are grounded in social cognitive theory. Numerous smoking cessation manuals are available including the “I Quit Kit” or “Smart Move” from the American Cancer Society (ACS), and the “Helping Smokers Quit Kit” from the National Cancer Institute (NCI), which combine various techniques for smoking cessation such as smokeless tobacco, recording the number of cigarettes smoked, setting goals for smoking cessation, and so on.

This method requires the person who is attempting to stop smoking (ex-smoker candidate) to improve his/her own environment to support him/herself by no longer carrying cigarettes, keeping neither tobacco nor ashtrays at home. If a smoker succeeds in quitting using the self-help method, the sense of achievement may act as a reinforcement and contribute to sustaining the duration of smoking cessation. Human behavior tends to be easily influenced by individual circumstances or the social environment, hence many ex-smokers may start smoking again. It is often the case that the self-help method does not yield a high lifetime quit rate.

2. **Clinic-Based Method**

In this method, an ex-smoker candidate attempts to quit smoking with the aid of another, and can access smoking cessation facilities or professionals for smoking cessation treatment. (1) **Smoking cessation counseling method**

Under this method a physician or a counselor offers guidance on self-help methods to an ex-smoker candidate through counseling at an ordinary clinic. This method is considered to be superior to the self-help method in terms of behavioral science, because the counselor can demonstrate warm or supportive concern to the client through the counseling process.
Table: Outline of Tobacco Control Measures and Their Sub-Types

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<th>Type</th>
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<td>Self-help smoking cessation method</td>
<td>Self-management methods and various smoking cessation aids, e.g., smokeless tobacco, utilized by individuals who want to quit&lt;br&gt;• ACS: I Quit Kit, Smart Move&lt;br&gt;• NCI: Helping Smokers Quit Kit&lt;br&gt;• ALA: Freedom from Smoking</td>
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<td>Self-help cessation method, nicotine replacement therapy, etc., applied to individuals by medical professionals, etc.&lt;br&gt;• ALA: Freedom from Smoking&lt;br&gt;• DHHS: 5A’s (Five A’s)&lt;br&gt;• AHCPR: Smoking Cessation Clinical Practice Guideline</td>
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<td>Smoking cessation, separation of smoking/non-smoking areas</td>
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<td>Smoke-free social environment</td>
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(Compiled from items 2, 3, and 4 in the references section)

(2) **IT counseling method**

This method provides an ex-smoker candidate with smoking cessation counseling via the telephone or the Internet. It may not always sufficiently motivate an ex-smoker candidate, but its merits lie in the convenience of not having to make clinic visits and in its modernity.

(3) **Smoking cessation clinic method**

In this method, a physician or a co-medical professional provides an ex-smoker candidate with advice on self-help methods with some nicotine replacement therapy, e.g. nicotine gum, nicotine patches or other forms of pharmacotherapy at clinics. It has recently been stressed that the “Five A’s”6) (Five A’s method) should be used widely not only at smoking cessation clinics but also as part of everyday diagnosis and treatment in general healthcare settings. The Five A’s are: Ask, “asking the patient if he/she uses tobacco”; Advice, “advising the patient to quit tobacco use”; Assess, “assessing the patient’s willingness to quit tobacco use”; Assist, “assisting the patient in his/her quit attempt” whilst providing explanations on the significance of setting a quit date, self-help methods, smoking cessation aids, nicotine replacement therapy, or readiness to offer patient support; and Arrange, “arranging follow-up contacts and relapse prevention”.

(4) **Other clinic-based methods**

Aversion therapy is a method of smoking cessation that involves conditioning an ex-smoker candidate to develop feelings of aversion to smoking through rapid smoking. Acupuncture of the auricle of the ear or the nose and hypnotic therapy combined with self-help method are also available.

It is essential for the environment of domestic, occupational or clinic settings to be smoke-free in order to yield a high quit rate by clinic-based methods.

3. **Group-Based Methods**

(1) **Group-based smoking cessation method**

This method includes those offered by the Seventh-day Adventist Church, named as the Five-day Plan introduced in 1960, or the Breath-Free Plan introduced in 1985, in which a group of ex-smoker candidates receives lecture on self-help methods. The Smokeless and Smoke Stoppers Program offered by St. Joseph Mercy Hospital teaches a group of ex-smoker candidates self-help methods and comprises four initial sessions followed by three sessions for reinforcement. These methods utilize the operant conditioning theory, e.g. with reinforcement using rewards.

(2) **Workplace-based smoking cessation method**

Basically, this is a self-help method that is carried out with the cooperation of the corporation, employees, and medical professionals, and which is sometimes coupled with operant conditioning theory type reinforcement measures such as smoking cessation allowances, and so forth. For this method to be effective it is essential that improvements be made to the environment surrounding the employees and in the workplace itself, and that the objectives of smoking cessation be officially announced in the corporation.

4. **Community Wide Method**

This methods target local community groups made up of large numbers of people as opposed to a group of employees or the like who know each other. Methods targeting students at schools fall into this category, since they are intrinsically related to their guardians and their environment outside of the school.

(1) **Tobacco prevention education at schools**

The “Know Your Body Program” of the American Health Foundation is famous and is used in Japan, though other forms of tobacco prevention education are also being attempted. It includes a self-help method but it targets all aspects of smoking prevention, smoking cessation, and promotion of smoke-free environments. In order to increase its effectiveness, schools must, at least, be made into smoke-free areas, as pointed out in cognitive dissonance theory.
(2) **Community wide tobacco control methods**

This method of tobacco control targets an unspecified and large number of community residents. In Japan, aside from the anti-smoking contest sponsored by the Osaka Cancer Prevention and Detection Center, and the Smoke-Free Environment Poster Competition sponsored by the council to promote the “Smoke-Free Environments for Kids” campaign, there are various tobacco control activities being undertaken by, for example, the Japan Anti-Smoking Benefit Society, the Aichi Prefecture Lung Cancer Action Association, and the Nosecho district in Osaka. Globally, there is the World No Tobacco Day sponsored by WHO, plus the Stanford Five-City Project run by the National Institute of Health (NIH), and the Community Intervention Trial for Smoking Cessation (COMMIT) sponsored by NCI, which are examples of large-scale community wide tobacco control measures.

(3) **National and international tobacco control methods**

The focus of tobacco control measures is currently shifting towards community wide methods, and measures are increasingly being implemented at the national and international level. WHO is endeavoring to promote smoking prevention, smoking cessation, and promotion of smoke-free environments at the global level via the “Framework Convention on Tobacco Control”. The convention includes regulating vending machines, raising taxes on tobacco, making health warnings obligatory, regulating tobacco advertising, publicity events, promoting smoke-free public spaces, and smoking prevention education.

**Evaluation of Tobacco Control Methods**

Green defines evaluation as “the comparison of an object of interest against a standard of acceptability”, however, the evaluation of tobacco control measures is carried out from both a scientific perspective and in terms of public health policy.

1. **Scientific evaluation of tobacco control methods**

Although there are numerous perspectives, the most important aspect is the effectiveness of a tobacco control method in terms of both its internal and external validity. The former perspective means the effectiveness of a certain study designed to examine the effectiveness of a particular smoking control method in terms of epidemiological internal validity. The latter perspective explores the universal effectiveness observed in a certain study of a tobacco control method, in its application to other populations.

There are multiple research designs available for examining internal validity, including randomized controlled trials (RCT), non-randomized controlled trials, and well controlled cohort studies, which are listed in order of the reliability or authenticity of the results, and the study results obtained by these research methods are adopted as proof of authenticity. The NCI-sponsored COMMIT program was examined using a RCT method, and the NIH-sponsored Stanford Five-City Project was evaluated using a non-RCT method. However, little research has been conducted on the efficacy evaluation of tobacco control methods using such highly authentic epidemiological research methods. A report on twelve smoking cessation counseling methods conducted by physicians in the US and Canada indicates that the median quit rate one year after the implementation of counseling was 6 percent. Furthermore, few reports have been published on the external validity of tobacco control methods.

2. **Evaluation of tobacco control methods from the point of public health policy**

Program evaluation from the perspective of public health policy includes cost-effectiveness, the acceptability of clients or ex-smoker candidates undergoing treatment or programs, and
the resulting side effects. Among tobacco control methods, clinic-based methods of tobacco control are regarded as being cost-effective, although quit rates are low. Since the majority of smokers will seek medical attention, including at ordinary clinics, for one reason or another and the smoking cessation clinic methods, e.g. counseling or the Five A’s are easy to implement in terms of time, effort and the costs involved, it is hoped that the use of these methods will become increasingly widespread.4,6)

Conclusion

Tobacco Control Measures were reviewed in the broad sense of smoking control, indicating that their focus has shifted to community wide approaches on a national and international level. This review also mentioned that clinic-based methods such as the Five A’s method have been regarded as easily applicable and cost-effective to a large number of smoking patients who visit clinics for any number of reasons, and that they are expected to become more popular in the future. The Japan Medical Association has also established the JMA Antismoking Promotion Project Committee, and finally in accordance with Dubos’ statement, “Think globally, act locally”9), the present author would like to emphasize that medical and co-medical professionals are expected to support the planning and implementation of tobacco control measures in workplaces, educational institutions, healthcare institutions, and local communities.10)

REFERENCES