

A preliminary review of literatures focusing on the neighborhood noise issue in Japan

Kyoko Yoshioka-Maeda, PhD, R.N., P.H.N.¹⁾

¹⁾Associate Professor. Department of Community Health Nursing, School of Nursing, Faculty of Medicine, Tokyo Medical University, Japan

Abstract

Further urbanization in Japan has led to a new 'kinrin souon' problem, which means neighborhood noise issue within and among communities. The purpose of this study was to review the Japanese literatures that focused on neighborhood noise issues, and to clarify what kinds of research have already been done in this field. To conduct this systematic review, the researcher utilized three databases—namely, the Japanese Central Review of Medicine, Cinii Articles, and the National Diet Library-Online Public Catalog Access. The keyword used for this study was "kinrin souon" in the Japanese language, which literally translates to "neighborhood noise". From the extant published work, 23 literatures were selected for this thematic analysis.

Analyzing the secular change of the literature, approximately 50% were published after the 1980s. Lack of communication among neighbors negatively affected how they perceived the loudness of daily sounds. Having a tight and harmonious relationship among neighbors actually reduced the negative perception of daily noise. Considering the effects of urbanization, the neighborhood noise issue has become unavoidable for people living in many communities and local governments in urban areas. Some cases of neighborhood noise would need further assistance from the local government to resolve the issue because of weak community relations among its citizens. The issue includes not only the loudness of the noises but also the emotional conflicts between and among neighbors. The keys to solving this problem are improvement of living conditions and improvement of neighbor relations among community members.

Key words: neighborhood noise issues, urbanization, community, emotional conflict, neighbor relations

❖ Introduction

Noise pollution refers to unwanted sounds in the environment that could adversely affect people's health. Hearing impairments are one of the most common effects of too much exposure to noise^{1,2)}. Noise exposure is also related with sleep disturbance, mental disorders, cognitive performance in adults and children, and raising blood pressure³⁻⁵⁾. In 1999, the World Health Organization (WHO) developed the 'Guidelines for Community Noise' which basically discuss the adverse effects of noise and proper noise management. In all countries, policy development has been important for protecting peoples' health. There have already been many attempts by governments to control noises com-

ing from aircrafts, traffic, railways, and factories⁶⁾. However, the neighborhood noise issue remains as a major concern and cause of public health problems⁷⁾.

Further urbanization in Japan raised a new 'kinrin souon' problem, which means a neighborhood noise issue within and among communities^{8,9)}. In Japan, the national government implemented the Noise Regulation Law in 1968¹⁰⁾. According to the pollution complaints survey conducted in 2012, 41.7% of cases of noise pollution occurred in residential areas. Seventy-four percent of the affected citizens claimed that their sensory organs and psychological health had been damaged¹¹⁾. Neighborhood noise generally pertains to the conflicts that occur between and among neighbors who complain about each other's noises¹²⁾. Noise sensitivity is subjective to each and every individual¹³⁾. Hence, it has become difficult to assess the neighborhood noise problem because the level of tolerance of neighborhood noise may vary from one person to an-

Received: July 15, 2014

Accepted: October 12, 2014

Telephone: +03-351-6141 Fax: +03-3351-3691

e-mail: kyoko@tokyo-med.ac.jp

other¹⁴).

To develop a better community, we need to know how to properly manage neighborhood noise issues. The purposes of this study were to review the Japanese literatures that focused on neighborhood noise issues, and to clarify what kinds of research have already been done in this field.

❖ Methods

To conduct a systematic review, the researcher performed literature searches in three databases—namely, the Japanese Central Review of Medicine, Cinii Articles, and the National Diet Library-Online Public Catalog Access. The keyword used was “kinrin souon” in the Japanese language, which literally translates to “neighborhood noise”.

The researcher identified 76 articles of which 24 were immediately excluded because of overlapping of topics in the articles”. The remaining articles were read and 5 additional articles were excluded because they were not relevant and 11 were deselected because they were abstracts of academic conferences. Thirteen articles were unavailable. Finally, 23 articles were includ-

ed in this literature review (Figure 1).

After carefully reading the articles, the researcher analyzed secular changes in the articles and classified them into categories depending on their content.

❖ Results

1 The secular change of literatures focused on the neighborhood noise issue

After analyzing the secular change of the literatures, the researcher found that around 50% of them were published after the 1980s (Figure 2). With continuous economic development, many recreation facilities were established in urban areas¹⁵).

The literature mentioned that most of the noises came from karaoke bars and commercial complexes¹⁶¹⁷). Only two articles published in the 1990s mentioned public noise and citizens’ activities¹²¹⁸). In the literatures published after 2000, residents were already starting to react against neighborhood noises. In addition, characteristics of the noise issue were also discussed¹⁹⁻²¹).

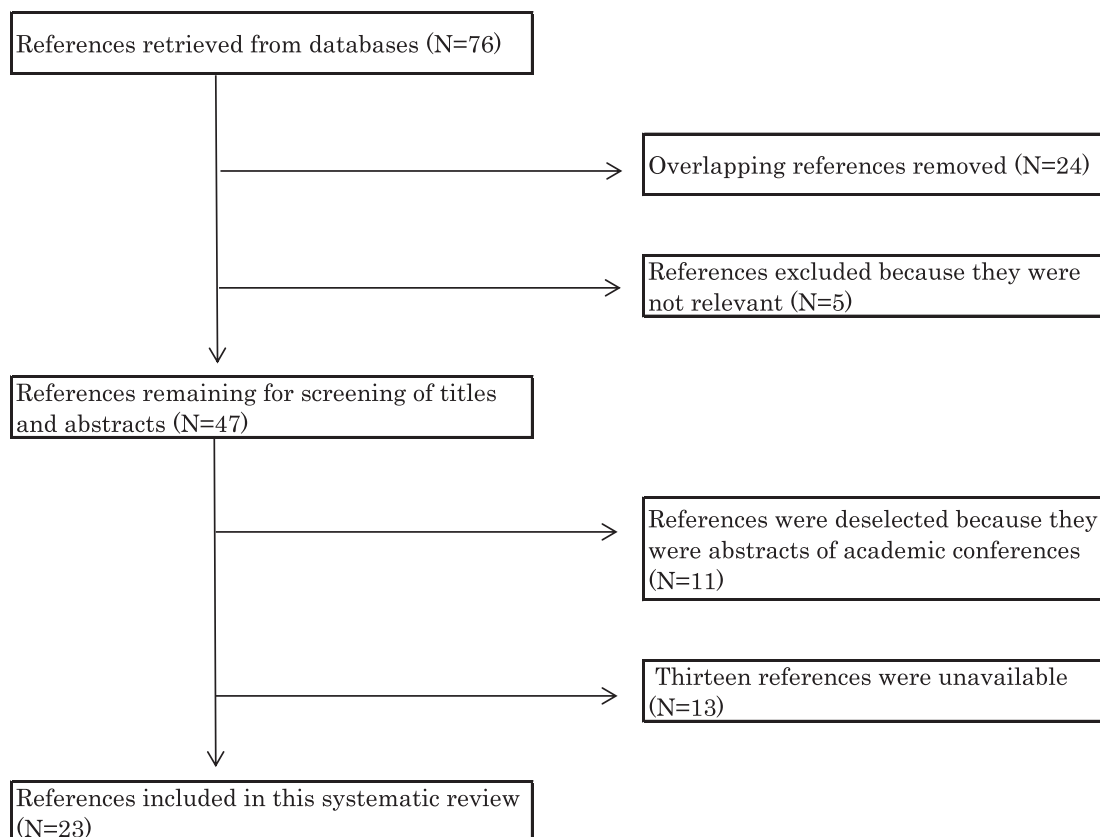


Figure 1 Flow chart of study selection.

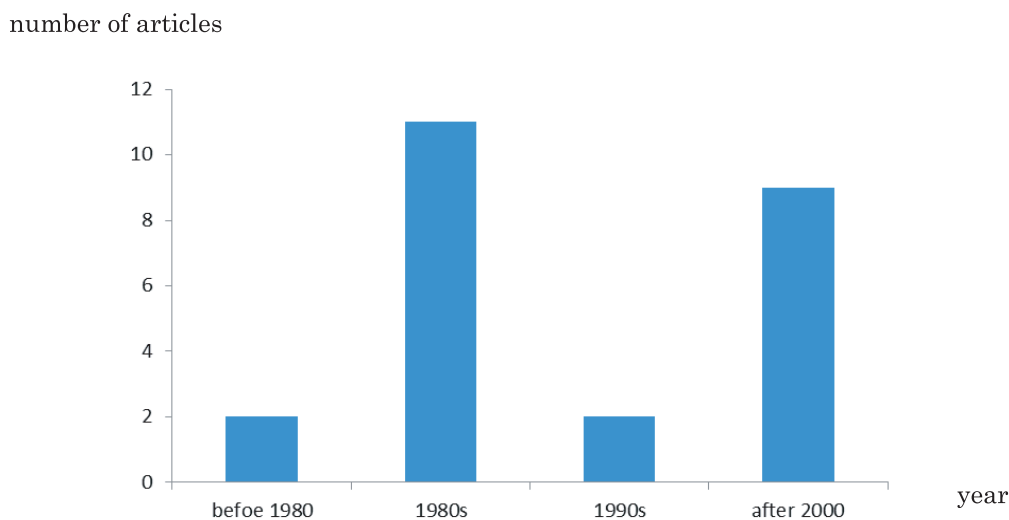


Figure 2 The secular change of literatures focused on the neighborhood noise issue.

2 Classification of the literatures focused on the neighborhood noise issue

The literatures discussed three important features of the neighborhood noise issue: 1) background factors of the neighborhood noise issue, 2) classification and characteristics of the neighborhood noise issue, and 3) ways of coping and implications for the solutions to the neighborhood noise issue.

1) Background factors of the neighborhood noise issue

Table 1 shows background factors of the neighborhood noise issue. Morita⁹⁾ and Okiyama²²⁾ identified 7 main factors: (1) overcrowding, (2) developing urbanization, (3) overexploitation, (4) building of apartments and houses with low sound insulation, (5) the increased use of electric equipment at home, (6) increased number of recreation facilities, and (7) lack of communication among neighbors. Additionally, the calmness of a residential area depended on the noises outside the house²³⁾. People in neighborhoods had very high tolerance of daily life noise. However, many people could not tolerate the noise produced by karaoke bars¹⁹⁾.

Based on the nationwide survey conducted by Hasimoto & Mutou in 2007, lack of common sense, weak human relations, and urbanization were causes of the neighborhood noise issue²⁴⁾. Lack of communication among neighbors negatively affected how they perceived the loudness of daily sounds. In contrast, having a tight and harmonious relationship among neighbors actually decreased their negative perception of daily noise²⁵⁾. In connection with the former, people who

lived in urban areas showed a higher rate of negative reactions to daily noise²⁰⁾.

2) Classification and characteristics of the neighborhood noise issue

Table 2 shows the classification and characteristics of the neighborhood noise issue. The Ministry of the Environment of Japan¹⁵⁾ classified 7 categories of the issue: (1) noise emitted during the nighttime operation of bars and restaurants in concentrated residential areas, (2) noise caused by public announcements through the use of loudspeakers, (3) daily life noise, (4) noise related to public kindergarten and elementary schools, (5) noise of small and medium-sized factories in residential areas and industrial regions, (6) noise caused by construction work in urbanized areas, and (7) noise caused by commercial announcements through loudspeakers in downtown areas. Harada¹⁷⁾ simply divided neighborhood noise into three categories: (1) noise produced by using loudspeakers, (2) noise produced during the nighttime operation of commercial facilities, and (3) daily life noise.

The neighborhood noise had 3 characteristics. The neighborhood noise issue was caused not only by daily living but also by heightened emotional confrontation among neighbors¹²⁾²⁶⁾. Second, the noise was partially diffuse²⁶⁾²⁷⁾. Third, people's complaints showed victimhood by the issue²⁸⁻³⁰⁾. Due to lack of communication between the person responsible for the source of the noise and the affected person, the latter would have a negative impression of the former¹²⁾. In some cases, the neighborhood noise issue did not subside despite com-

Table 1 Background factors of the neighborhood noise issue.

Factors	Reference number
1 Overcrowding	21, 22, 30
2 Developing urbanization	22, 24, 30
3 Overexploitation	22, 30
4 Building of apartments and houses with low sound insulation	22, 30
5 The increased use of electric equipment at home	22, 30
6 Increased number of recreation facilities	19, 22, 30
7 Lack of communication among neighbors	20, 21, 22, 25, 30
8 Noises generated outside the private home	23

Table 2 Classification and characteristics of the neighborhood noise issue

	Categories	Reference number
Classification	1 Noise emitted during the nighttime operation of bars and restaurants in concentrated residential areas	15
	2 Noise caused by public announcements through the use of loudspeakers	15, 17
	3 Daily life noise	15, 17
	4 Noise related to public kindergarten and elementary schools	15
	5 Noise of small and medium-sized factories in residential areas and industrial regions	15
	6 Noise caused by construction work in urbanized areas	15
	7 Noise caused by commercial announcements through loudspeakers in downtown areas	15
	8 Noise produced during the nighttime operation of commercial facilities	17
Characteristics	1 The issue is caused not only by daily living but also by the heightened emotional confrontation among the neighbors	12, 26, 28
	2 The noise was partially diffuse	26, 27
	3 People's complaints showed victimhood by the issue	28, 29, 30

plaints coming from affected members of the community³¹).

3) Ways of coping and implications for the solutions to the neighborhood noise issue

The literature review showed ways in which people coped with the neighborhood noise issue (Table 3). Based on a nationwide survey, affected persons who had been highly damaged by neighborhood noise tended to claim that they were directly victimized by the issue; they realized that there is actually a need for certain regulations⁸). The survey showed that some affected persons attempted to confront the issue by storming into their neighbor's house and complaining about the noise. Some of them would also make anonymous calls to the person responsible for the noise; moreover, they

have also tried consulting with the public administration and the local police¹²). However, because of the severe impact of the neighborhood noise, some of them moved their residence to another location in order to prevent further neighborhood conflict¹²).

The keys to ameliorating this problem are improvement of living conditions and improvement of neighbor relations. Lack of understanding between and among neighbors could lead to heightened and recurring emotional conflicts in the near future¹²). Greeting and communicating with neighbors on the street²⁵⁾³²), and talking with the people responsible for the noise¹⁷⁾²¹) would be effective for improving the issue (Table 3). The Ministry of the Environment of Japan mentioned that the basic solution was to establish stable communication among the people concerned¹⁵). That is because the issue includ-

Table 3 Ways of coping and implications for the solutions to the neighborhood noise issue

	Categories	Reference Number
Ways of coping	1 Need for certain regulations	8
	2 By storming into their neighbor’s house and complaining about the noise	12
	3 Making anonymous calls to the person responsible for the noise	12
	4 Consulting with the public administration and the local police	12
	5 Moving one’s residence in order to prevent further neighborhood conflict	12
Implications for the solution	1 Greeting and communicating with neighbors on the street	25, 32
	2 Talking with the people concerned	15, 17, 21
	3 The public administration would take the role of a mediator	33
	4 Acting to regulate the problem	16, 18, 27, 34

ed not only daily life noise but also the relationships of people in the neighborhood.

However, in some cases, because of their weak sense of community, insignificant conflicts evolve into intense emotional confrontations that are difficult to resolve. Harada pointed out that neighborhood conflicts caused by daily life sound issues and solving them had been a large problem for local governments¹⁷⁾. In some cases, the public administration would take the role of a mediator that facilitated the construction of solutions in response to the issue of minimizing damage caused by the daily noise³³⁾; they also act to regulate the problem¹⁶⁾¹⁸⁾²⁷⁾³⁴⁾.

Figure 3 shows solutions made in response to the neighborhood noise issue. People living in neighborhoods had very high tolerance of daily life noise. However, many people could not tolerate the noise produced by karaoke bars¹⁹⁾. Whether the public administration can regulate noise pollution or not would depend on the loudness and tolerable limit of the noise¹⁶⁾. One problem is that individuals have different tolerable levels of noise³²⁾. In case of limited impact of the neighborhood noise issue, communicating with neighbors and maintaining a harmonious relationship with neighbors would be effective for resolving the issue²⁵⁾. In some cases, the public administration would have to act as a mediator in order to minimize the damage³³⁾.

❖ Discussion

The current review focused on Japanese literatures that were related to neighborhood noise issues. It also clarified what kinds of research have already been done

in this field.

This study provides three new findings. First, it was found that the neighborhood noise issue is actually due to urbanization of communities and lack of communication among neighbors. Second, the issue includes not only the loudness of the sound but also the emotional conflicts between and among neighbors. Third, establishing better communication lines between and among neighbors would be helpful in resolving the issue. On the other hand, some cases would need further assistance from the public administration because of weak community relations.

The results showed that literatures related to the neighborhood noise issue were mostly published after the 1980s, and many papers on this issue were published in the 1980s and after 2000. They revealed that economic growth and urbanization affected the neighborhood noise issue in Japan. Initially, most of the noises were generated from karaoke bars, small and medium-sized factories, and loudspeakers used for commercial announcements which later affected urban and residential areas¹⁵⁾¹⁷⁾. Daily life noise has become a social problem in the community³⁵⁾. It would be difficult to control daily life sounds and to consider the making of it as an illegal act²¹⁾. This means that the features of neighborhood noise have changed from regular noise to irregular noise.

The results also showed that the neighborhood noise issue was in part due to the lack of communication between and among neighbors. Lack of contact within the community affected people’s perception of the loudness of daily life sounds²⁰⁾²⁵⁾³²⁾. Furthermore, intense emotional conflicts between and among some neighbors were also found to be one of the major sour-

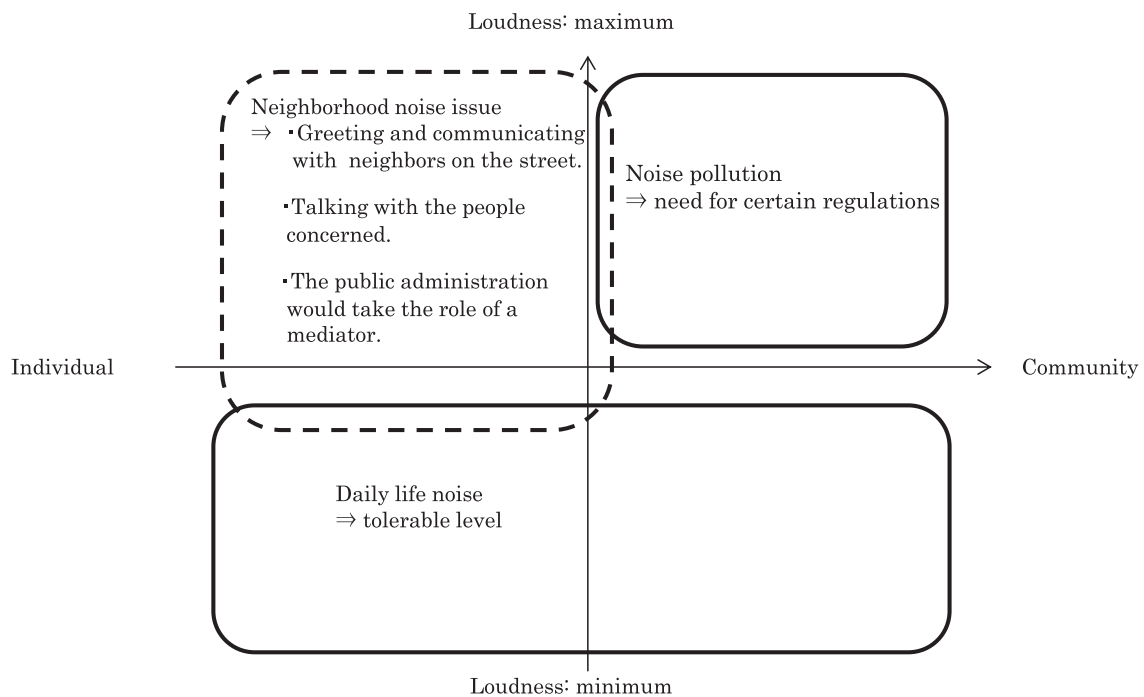


Figure 3 Solutions to the neighborhood noise issue.

es of daily life noise⁶⁾⁽¹²⁾⁽²⁹⁾. Previous studies focused on noise annoyance³⁶⁾ and health problems arising from neighborhood noise including sleep disturbance, cardiovascular disease, reduced cognitive performance, and hearing disorders³⁷⁾. However, they did not mention in the emotional conflict between and among neighbors³⁴⁾. This is a new finding that basically says that the aforementioned characteristics could cause a neighborhood noise issue which could eventually become an intractable problem.

Considering the effects of urbanization, the neighborhood noise issue has become unavoidable for many people in the community and public administrations in urban areas. Some literatures suggest that enhancing communication with neighbors would be helpful for resolving the issue²⁵⁾⁽³²⁾. The fundamental goals of noise management were based on the developing criteria for deriving safe noise levels⁶⁾. Our findings suggest that new solutions for managing the neighborhood noise issue should be discussed by people in the community so that they can contribute to improvement of community relations.

The literature regarding government intervention showed an alternate view. The Ministry of the Environment of Japan thought that it would be appropriate if members of the community themselves would take initiative in solving the problem¹⁵⁾. However, some literatures showed that public administrations would only

tackle the neighborhood noise issue if it is due to weak community relations and if they have to in order to prevent worsening of relationships among people in the community¹⁷⁾⁽²⁷⁾⁽³³⁾. Inclusion of the acoustic environment in the existing health policy would improve the quality of life of urban residents⁵⁾. Public administrators should give advice to people in order to heal their emotional conflicts and develop a better community.

This study has two limitations. First, only Japanese literatures were reviewed. Second, only one keyword was used in the literature search. It would reflect selection bias. In the future, a literature review that has a wider scope in English-language articles and a literature search with additional keywords would be necessary.

❖ Acknowledgements

This study was supported by JSPS KAKENHI Grant Number 25893250 and Supporting Positive Activities for Female Researchers of Tokyo Medical University.

❖ References

- 1) Goldsmith JR & Jonsson E. Health effects of community noise. *American Journal of Public Health*

- 63, 782-793 (1973).
- 2) Staples SL. Public policy and environmental noise: modeling exposure or understanding Effects. *American Journal of public health* 87, 2063-2067 (1997).
 - 3) Belojevic G, Jakovljevic B, Slepcevic V. Noise and mental performance: personality attributes and noise sensitivity. *Noise Health* 6, 77-89 (2003).
 - 4) Stansfeld SA & Matheson MP. Noise pollution: non-auditory effects on health. *British Medical Bulletin* 68, 243-257 (2003).
 - 5) Moudon AV. Real noise from the urban environment: How ambient community noise affects health and what can be done about it. *American Journal of Preventive Medicine* 37, 167-171 (2009).
 - 6) Berglund B, Lindvall T, and Schwela DH. Noise sources and their measurement. In: Berglund B, Lindvall T, and Schwela DH, editors. *Guideline for community noise*. Geneva: WHO, 1999: 3-20. <http://www.who.int/docstore/peh/noise/guidelines2.html> (Last cited on 2014 July 7)
 - 7) Passchier-Vermeer W & Passchier WF. Noise exposure and public health. *Environmental Health Perspectives* 108, 123-131 (2000).
 - 8) Nanba S, Kuwano S, Nakamura T, Kato T. A questionnaire survey on community noise. *Nihon onkyo gakkai shi* 34, 592-599 (1978) (in Japanese).
 - 9) Morita M. Neighborhood noise; present state and countermeasures. *Onkyo gijyutu* 10, 1-5 (1981) (in Japanese).
 - 10) Ministry of the Environmental Government of Japan. Noise Regulation Law 1968. <http://www.env.go.jp/en/laws/air/noise/ch.html> (Last cited on 2014 July 7)
 - 11) Kougai tou chousei iin kai, Ministry of Internal Affairs and Communications. Heisei 24 nen do kougai kujyou chousa 2013: 1-12. http://www.soumu.go.jp/main_content/000261044.pdf (in Japanese) (Last cited on 2014 July 7).
 - 12) Ozaki I. Kinrin souon funso no shori katei: ho no kakudai to genkai wo megutte. *Kokka gakkai zassi* 104, 725-769 (1991) (in Japanese).
 - 13) Belojevic G & Jakovljevic B. Factors influencing subjective noise sensitivity in an urban population. *Noise Health* 4, 17-24 (2001).
 - 14) Bell A. Noise: An occupational hazard and public nuisance. *WHO Public Health Paper* 30, 100-109 (1966). http://apps.who.int/iris/bitstream/10665/39744/1/WHO_PHP_30.pdf (Last cited on 2014 July 7).
 - 15) Ministry of the Environmental Government of Japan, kinrin souon taisaku kenkyukai. Kinrin souon mondai no genjyou to kongo no kadai. *Kankyo chokogai senmonshiryo* 19, 73-80 (1984) (in Japanese).
 - 16) Araki T. Kinrin souon no genjyou to taisaku. *Koshu eisei* 46, 462-466 (1982) (in Japanese).
 - 17) Harada N. Souon boushi to "Seion ken": kinrin souon mondai wo chusin ni site. *Horitu no hiroba* 39, 40-45 (1986) (in Japanese).
 - 18) Tatara H. Higai sha no kanten kara mita kinrin souon no genjyou to kadai. *Environmental conservation engineering* 26, 385-388 (1997) (in Japanese).
 - 19) Otsuka S. Kinrin souon no hanrei ni miru okunai souon level no junin gendo. *Kankyou kanri* 37, 547-551 (2001) (in Japanese).
 - 20) Hasimoto N, Masaya H, Mutou N. Basic research on response against noise complaint using picture-frustration study: Study on noise dispute affair. *Nihon kentiku gakkai gijyutu houkoku shu* 22, 335-340 (2005) (in Japanese).
 - 21) Hashimoto N. Questionnaire on neighborhood noise dispute to person in charge of noise problem in municipal office. *Nihon kentiku gakkai gijyutu houkoku shu* 13, 171-176 (2007) (in Japanese).
 - 22) Okiyama F. Tosi gata souon mondai no zentai zo: kujou*taisaku no suii to kongo no tenbo. *Sigen kankyou taisaku* 38, 1074-1081 (2002) (in Japanese).
 - 23) Kuno K & Takemori Y. "Sizukasa" ni kansuru jyumun isiki no bunseki. *Nihon onkyogakkai shi* 46, 716-722 (1990) (in Japanese).
 - 24) Hasimoto N & Mutou N. Questitative evaluation on response against noise complaint using picture-frustration study. *Nihon kentiku gakkai gijyutu houkokushu* 13, 181-184 (2007) (in Japanese).
 - 25) Yamanouchi K, Hisata M, Yamamoto K. A study of psychosocial factors affecting community noise annoyance. *Sogo tosi kenkyu* 18, 65-87 (1983) (in Japanese).
 - 26) Daimon S. Kinrin souon mondai wo meguru controlability no shoso: koteki kainyu no shogenkai to higaisha undo no kanousei no kento wo chusin ni. *Housei daigaku daigakuin kiyo* 55, 91-108 (2005) (in Japanese).
 - 27) Daimon S. Responding to Neighborhood noise problems as responsibility practices: normative theoretical consideration of the "meaning of complaints of suffering." *Kankyou shakai gaku kenkyu* 14, 155-169 (2008) (in Japanese).
 - 28) Tamura A. Souon ni taisuru shakaiteki taido no

- toukei bunseki. *Kentiku zassi* 97, 30-34 (1982) (in Japanese).
- 29) Nakamura T & Nanba S. A laboratory study of annoyance due to low level noise in a quiet environment. *Nihon onkyo gakkai shi* 40, 302-310 (1984) (in Japanese).
- 30) Morita M. Kinrin souon no kaiketu jirei ni tuite: sibuya ku souon jiken no shori wosanko ni site. *Cho sei* 52, 2-9 (2008) (in Japanese).
- 31) Tamura A. Seikatu kankyo ni okeru souon to jyumin. *Nihon gomu kyokai shi* 57, 328-336 (1984) (in Japanese).
- 32) Yamamoto K. Kinrin souon no sinri shakai teki kouzo. *Koshu eisei* 46, 470-474 (1982) (in Japanese).
- 33) Kuga S. Noise problem in the neighborhood. *Nin-gen kogaku* 18, 135-140 (1982) (in Japanese).
- 34) Sano Y. Kinrin souon no jittai to taisaku. *Jurisut* 673, 62-65 (1978) (in Japanese).
- 35) Yano T, Gjestland T, Lee S. Community response to noise. *Noise Health* 14, 303-306 (2012).
- 36) Nykaza Et, Hodgdon KK, Gaugler T, Krecker P, Luz GA. On the relationship between blast noise complaints and community annoyance. *Journal of Acoustical Society of America* 133, 2690-2698 (2013).
- 37) Kamp IV & Davies H. Noise and Health in vulnerable groups: a review. *Noise Health* 15, 153-159 (2013).