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Original Article

A Scoping Review of Tele-psychology via Videoconferencing in Japan: A Comparison with Face-to-face Psychological Intervention

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Abstract

Recently, the need for tele-psychology has increased. Tele-psychology via videoconferencing is considered to facilitate interviews in an environment similar to face-to-face psychological interventions. However, no studies have yet compared the characteristics between tele-psychology via videoconferencing and face-to-face in Japan. We conducted a scoping review on domestic articles that aimed to clarify the characteristics of tele-psychology via videoconferencing and its differences from face-to-face sessions. Selection criteria were: (i) articles published in Japanese journals, (ii) involved psychological intervention, (iii) sessions conducted at two remote locations, (iv) specific clients, (v) synchronous tele-psychology in which the therapist and client transmitted audio and video in real time, rather than one-way delivery, and (vi) included

a comparison with face-to-face sessions. A search of domestic articles published before June 2020 using CiNii and Ichushi-Web revealed that five out of 150 articles met the criteria. Their qualitative and descriptive data were extracted and integrated. We assessed the characteristics of tele-psychology via videoconferencing regarding communication characteristics in therapy, the therapeutic relationship, and symptom reduction. Tele-psychology via videoconferencing was effective in alleviating symptoms and transmitting non-verbal communication such as emotions and mood. On the other hand, it was suggested that the degree of intimacy was lower as participants were in a separate space, and that the formation of the therapeutic relationship was more difficult compared to face-to-face psychological intervention. In the future, it is necessary to accumulate data on the differences between synchronous tele-psychology via videoconferencing and face-to-face to promote tele-psychology in Japan.

Keywords: tele-psychology, videoconferencing, synchronous tele-psychology, scoping review, remote music therapy

Introduction

In recent years, there has been a growing need for tele-psychology utilizing ICT (Information and Communication Technology).¹⁹⁾ The American Psychological Association (APA) defines tele-psychology as “the provision of psychological services using information technology for remote communication,”³⁾²¹⁾ and there are various methods for doing so, including telephone, email, chat, and web-based conferencing systems.¹⁷⁾ Tele-psychology is generally divided into synchronous and asynchronous types, depending on whether it involves real-time interaction. A representative study that evaluated the effectiveness of tele-

psychology involved cognitive behavioral therapy using the Internet, mostly classified as asynchronous support.⁴⁾⁶⁾ According to a recent report, these are self-help forms of tele-psychology with little or no therapist involvement, and problems such as high dropout rates and difficulty in forming therapeutic relationships have been pointed out.⁴⁾¹¹⁾ With asynchronous support, it is difficult for clients to maintain their attention until the end, and the low completion rate is considered a problem that must be solved to realize widespread use.¹⁾²⁾

In Japan, the number of counseling facilities providing synchronous tele-psychology via videoconferencing is

increasing,¹⁷⁾ and this is considered an effective means of improving completion rates. For example, the Guidelines for Remote Counseling of the Japan Association for Student Counseling (JASC) state that tele-psychology via videoconferencing enables real-time communication similar to face-to-face counseling and allows both parties to see each other's facial expressions,⁶⁾ making it easier to conduct interviews in an environment similar to face-to-face counseling.²¹⁾ However, the guidelines also point out qualitative characteristics such as the difficulty of grasping the overall physical condition and atmosphere of the patient, making it difficult to convey actual feelings.³¹⁾ Although the characteristics of tele-psychology have been pointed out in Japan, the guidelines for tele-psychology of JASC were created based on overseas papers and not empirical research conducted in Japan.

Overseas, empirical studies and reviews of tele-psychology using videoconferencing have already been conducted,⁶⁾²⁵⁾²⁶⁾ and APA developed Guidelines for the Practice of Telepsychology based on these empirical studies.³⁾²²⁾ In a systematic review by Backhaus, A. et al., one of the references used in the APA guidelines, synchronous tele-psychology via videoconferencing is referred to as Videoconferencing Psychotherapy

(VCP).⁶⁾ VCP can be applicable across various types of psychotherapy, and clients report high-level satisfaction with the therapy. It has also been reported that VCP is as effective as face-to-face psychological support in reducing symptoms.⁶⁾ Additionally, studies comparing the quality of the therapeutic relationship between VCP and face-to-face psychological support have been conducted, reporting no significant differences in communication quality, such as expressions of emotion and atmosphere, and indicating that a good therapeutic relationship can be established.²⁸⁾

However, the only systematic review of tele-psychology that has been conducted in Japan is the study by Takebayashi et al., which did not compare VCP with face-to-face psychological support.³⁰⁾ VCP has the characteristic of facilitating mutual connection because it enables synchronous verbal and nonverbal communication between the therapist and client. It also has the advantage of removing barriers for some users by improving access to counseling and convenience.⁶⁾ Therefore, it is necessary to summarize the characteristics of VCP based on domestic research reports.

Thus, we conducted a scoping review of domestic research reports that compared VCP and face-to-face psychological support from various

perspectives, with the aim of clarifying their differences in therapy-related factors and identifying the unique characteristics of VCP.

I. Methods

1. Methods

In this study, we conducted a scoping review based on the “Reporting Guidelines for Scoping Reviews (PRISMA-ScR) Japanese Version” created by Tomori et al.³²⁾ A scoping review is defined as a review method aimed at rapidly organizing the key concepts and types of available literature and information (evidence) in a research field.⁵⁾ While search procedures and data extraction methods are conducted systematically, the assessment of bias risk in each paper is optional, with the ultimate goal of comprehensively overviewing a wide range of findings.³²⁾ In Japan, there is currently no systematic summary of comparative research findings on VCP and face-to-face psychological support. Therefore, this study aimed to identify papers from a broad research field that align with the study objectives, and organize key concepts related to various elements, including qualitative differences between VCP and face-to-face psychological support, which is considered meaningful. Therefore, this study adopted a scoping review by specifying review questions, creating a

protocol to identify important studies comparing face-to-face support, and systematically setting search procedures and data extraction methods.

2. Selection criteria for target papers

Target papers were selected from domestic studies on VCP that compared it with face-to-face psychological support. The review question was set as follows: “Among clients with a need for psychological support (Patient [P]), how does VCP (Intervention [I]), compared with face-to-face psychological support (Comparison [C]), differ regarding various therapy-related factors (Outcome [O])?” A scoping review was conducted on tele-psychology implemented in a wide range of fields, including medical care, welfare, education, and industry. Based on the above review question, the following six selection criteria were established:

- (i) The study must be an academic paper published in a domestic academic journal.
- (ii) The study must be an intervention for the purpose of counseling or psychological support (excluding studies for the purpose of testing or investigation, such as psychological testing and structured interviews).
- (iii) The sessions must be conducted between two distant locations (one of which must be in Japan).

- (iv) The study must target specific clients (including group therapy), not an unspecified number of people.
- (v) The sessions must be conducted via videoconferencing, allowing real-time conversation between the client and therapist using audio and video. However, telephone calls and chat formats where the expressions of both parties cannot be seen, online seminars where only the images of the support provider are provided, and asynchronous support such as cCBT (computerized cognitive behavior therapy), email, and e-learning are to be excluded.
- (vi) It must compare tele-psychology with face-to-face psychological support using real-time video of both parties.

Figure 1 shows a diagram of the review questions in this study.

3. Paper search and selection method

Two authors, including the lead author, searched for domestic papers on tele-psychology using CiNii provided by the National Institute of Informatics and the online version of Ichushi-Web. The search was conducted on July 1, 2020.

The search terms used for condition (ii), “intervention for the purpose of counseling or psychological support,”

were “psychiatry” or “psychiatric,” “psychological therapy” or “psychotherapy,” “counseling,” and “mental.” For condition (iii), “conducted between two distant locations,” the terms “tele,” “online,” “remote,” “TV,” and “Internet” were used. In addition, the keywords “iCBT,” “e-mental,” “telecommunication therapy,” “IT counseling,” and “telecare” were set as keywords combining conditions (ii) and (iii).

4. Data extraction and analysis methods

Based on predetermined selection criteria, two authors independently conducted screening and eligibility checks. The data extraction process involved the first author extracting: Patient (P), Intervention (I), Comparison (C), and Outcome (O) from the target papers and creating a table, which was then reviewed and revised by the second co-author. The items extracted were basic information such as author, year of publication, title, research design, target area, and journal in which the paper was published. Patient (P) referred to the selection criteria for subjects, age, and number of subjects; Intervention (I) referred to an overview of the intervention, its location, main intervention personnel, and communication devices used; Comparison (C) was the control

intervention group, and Outcome (O) was the evaluation scale being compared and characteristics obtained from the evaluation and differences from face-to-face psychological support. According to the “Reporting Guidelines for Scoping Reviews,”³²⁾ the method of analyzing the results was based on the purpose of the review and judgment of the authors, and qualitative analysis was used to describe the characteristics. Therefore, in this study, when the intervention content and evaluation scales were not the same in the Outcome (O), we focused on the characteristics and differences of telepsychology compared with face-to-face psychological support, and extracted and integrated qualitative and descriptive data. As a methodology, we established an analysis method by referring to previous studies using scoping reviews, categorized the qualitative data of Outcome (O) extracted with the co-authors into categories according to the comparison content, and repeated summarization and revision.²³⁾²⁴⁾²⁷⁾²⁹⁾ Finally, the characteristics and differences of each category were described, and the main findings corresponding to the review questions were summarized.

II. Results

1. Selected papers and their characteristics

As shown in Figure 2, 150 papers were identified through the literature search, but duplicate papers were excluded and selection criteria were applied to narrow down the list. In the first screening, 123 papers that did not meet selection criteria (ii) to (v) based on the titles and Abstracts were excluded. In the second screening, 13 papers that did not meet selection criteria (ii) and (vi) based on the full-text content were excluded. As a result, five papers were finally selected.¹⁰⁾¹²⁾¹³⁾¹⁵⁾²⁰⁾ Data were extracted from the five studies (Nos. 1–5) based on the review questions and protocol (see Table).

In terms of basic information, the publication years ranged from 1997 to 2019. The study designs included four controlled trials (Nos. 1–4) and one cohort study (No. 5). The target areas were individual counseling in three studies (Nos. 1–3) and geriatric medicine in two studies (Nos. 4 and 5). The journals in which the studies were published were: ‘Psychological Research’ (1 study, No. 1), ‘Personality Research’ (1 study, No. 2), ‘Journal of the Japan Society for Educational Technology’ (1 study, No. 3), ‘Cancer and Chemotherapy’ (1 study, No. 4), and ‘Japanese Journal of Telemedicine and Telecare’ (1 study, No. 5).

1) P: Patient (subject)

The selection criteria for subjects were as follows: three cases (Nos. 1 to 3)

were adults who needed counseling for anxiety or other problems; one case (No. 4) was a dementia patient whose family had given consent for the study and who was able to operate a videoconferencing system; and one case (No. 5) was a dementia patient who had given consent or whose representative had given consent. The target age group was adults in three cases (Nos. 1-3) and elderly people in two cases (Nos. 4 and 5).

2) I: Intervention

As an overview of the intervention, two cases (Nos. 1 and 2) involved counseling as the psychological intervention method, one case (No. 3) involved counseling based on client-centered therapy, and two cases (Nos. 4 and 5) involved music therapy. The intervention was conducted in “two separate rooms in a counseling area adjacent to an educational institution” in three cases (Nos. 1-3), “a medical institution and the patient's home” in one case (No. 4), and “a facility where the interventionist was present and another facility where only the patient was present” in one case (No. 5). The main intervention providers were counselors in three cases (Nos. 1-3), a nurse in one case (No. 4), and a music therapist in one case (No. 5).

3) C: Comparison

The comparison group consisted of three cases (Nos. 1-3) comparing face-to-

face counseling with the same subjects, one case (No. 4) comparing remote music therapy with face-to-face music therapy with the same subjects, and one case (No. 5) comparing remote intervention with face-to-face intervention.

4) O: Outcome

All five outcomes were evaluated by clients, with no evaluations by therapists. Two studies (Nos. 1 and 3) described the characteristics of communication in the therapy setting, such as “information transmission,” “atmosphere transmission,” and “emotion transmission.” Three studies (Nos. 1-3) included descriptions of the therapeutic relationship, such as “rapport formation,” “trust in the therapist,” and “state anxiety in the therapy setting.” Two studies (Nos. 4 and 5) reported symptom reduction, including “changes in symptoms,” “therapeutic effects,” and “changes in smiling.” The outcomes measured in these five studies were categorized into three categories based on their content: “communication characteristics,” “therapeutic relationship,” and “symptom reduction.”

The “counseling communication evaluation items” were used as the evaluation scale for “communication characteristics” (No. 1). This scale was developed by Kakii based on previous studies and consisted of measurement

items for “information transmission,” “emotion transmission,” and “rapport formation,” which are characteristics of communication in counseling situations, as well as measurement items for the overall evaluation of counseling.¹²⁾ Additionally, a similar scale, the Counseling Evaluation Form, was used (No. 3). This scale was developed based on Kakii's Counseling Evaluation Items (No. 1), consisting of items measuring “the counselor's accepting attitude,” “positive perceptions of the counselor,” and “information transmission to the counselor” in the therapy setting.¹³⁾

To evaluate the “therapeutic relationship,” the Counseling Communication (No. 1), Counseling Evaluation Paper (No. 3), and “State Anxiety Scale” of the Japanese version of STAI (State-Trait Anxiety Inventory) (No. 2) were used. Additionally, some studies qualitatively organized clients' evaluations of the therapeutic relationship using free-response questionnaires or interviews (Nos. 1, 2).

The assessment scales for “symptom reduction” included the Japanese version of BPAD (Behavior Pathology in Alzheimer's Disease) (No. 4), MMSE (Mini-Mental State Examination) (No. 5), and NPI (Neuropsychiatric Inventory) (No. 5) as measures of symptom changes. Additionally, the Smile Scan Ver. 3 (No. 4) was used as a tool to measure changes in smiling and

indicate changes in behavioral and psychological symptoms associated with dementia.

2. Integration of qualitative and descriptive data extracted from outcomes

The content of outcomes was classified into three categories: “communication characteristics,” “therapeutic relationship,” and “symptom reduction.” For each category, qualitative and descriptive data were integrated to identify characteristics and differences between VCP and face-to-face psychological support.

Regarding “communication characteristics,” it was found that not only verbal communication such as information transmission but also nonverbal communication such as conveying a warm atmosphere and emotions could be effectively communicated, being similar to face-to-face psychological support. The presence of video in addition to audio allowed therapists' facial expressions, eye contact, and body language to be observed, leading to the evaluation that counseling communication was conducted similarly to face-to-face psychological support.

Regarding “therapeutic relationships,” it was found that rapport-building was better than in voice-only psychological support but slightly inferior to that in

face-to-face psychological support. The reasons why rapport building was evaluated as better than in voice-only psychological support were that the counselor's facial expressions could be seen, which reduced anxiety and made it easier to talk about problems and build relationships. However, the reasons why rapport formation was evaluated as slightly inferior to that in face-to-face psychological support included that the level of intimacy with the therapist was slightly lower, there was a certain sense of psychological distance, and that being in a different space caused feelings of loneliness.

Regarding "symptom reduction," it was found that behavioral and psychological symptoms associated with dementia were reduced in the same way as with face-to-face psychological support. Specifically, the frequency of "anxiety" and "appetite or eating disorders" was reduced to the same extent as with face-to-face support, and the level of smiling also improved.

III. Discussion

1. Characteristics of VCP compared with face-to-face psychological support

A scoping review was conducted to identify the characteristics of VCP compared with face-to-face psychological support, and several characteristics were identified in three areas: "communication characteristics,"

"therapeutic relationship," and "symptom reduction."

Regarding "communication characteristics," It was suggested that VCP allows for the transmission of not only verbal information but also emotions and atmosphere compared with face-to-face psychological support. This is likely because VCP is a synchronous support method that incorporates video, allowing therapists and clients to engage in real-time, two-way communication both verbally and nonverbally. Overseas systematic reviews comparing VCP with face-to-face psychological support also reported that clients with various disorders were able to express their emotions through VCP.⁶⁾ Regarding the reason why emotions and warm atmospheres can be conveyed despite both parties being in separate spaces, it has been pointed out that being in such spaces can actually be an advantage.⁶⁾⁷⁾ Backhaus et al. noted that in VCP, clients may feel less intimidated than with face-to-face psychological support, enabling them to exchange more information with therapists and express themselves more easily.⁶⁾ Bischoff, R.J. et al. reported that being in separate spaces promotes defamiliarization, making communication more natural and emotional expression easier.⁷⁾ Furthermore, compared with face-to-face psychological support, both clients

and therapists in VCP intentionally and clearly expressed nonverbal communication such as changes in voice intonation, tone, and body language in an exaggerated manner.⁷⁾

Regarding the therapeutic relationship, VCP was found to be superior to voice-only psychological support in forming therapeutic relationships, but slightly inferior to face-to-face psychological support. Overseas reviews and empirical studies comparing VCP and face-to-face psychological support reported that VCP is not necessarily inferior to face-to-face psychological support, and that the formation of therapeutic relationships tends to vary depending on whether clients are accustomed to videoconferencing.⁶⁾⁹⁾ Furthermore, Bischoff et al. reported that in the initial stages, when participants are not accustomed to delays in communication, it is difficult to grasp the pace of conversation, making it challenging to form a therapeutic relationship. However, they noted that this situation naturally encourages both parties to ask questions about unclear points and compensate for missing information, thereby fostering relationship-building efforts, and that therapeutic relationships can be established through VCP.⁷⁾

Regarding symptom reduction, two studies compared music therapy with

face-to-face psychological support in terms of alleviating behavioral and psychological symptoms associated with dementia. Although these were not randomized controlled trials, they suggest that music therapy via videoconferencing may have the same effect as face-to-face music therapy for patients with dementia. Overseas, research on tele-music therapy for dementia patients is a new field, and so there are few papers available.⁴⁾¹⁴⁾¹⁸⁾ The effectiveness of tele-music therapy compared with face-to-face psychological support needs to be verified. Concerning the feasibility of music therapy via videoconferencing, issues such as the availability of caregivers who can operate the system⁴⁾¹⁶⁾ and communication delays during music sessions have been pointed out.⁴⁾¹⁸⁾

According to a report by Lee, S., and colleagues, dementia patients who participated in synchronous group music therapy using Zoom evaluated the experience as “they were happy to sing with friends just like they did in person.”¹⁶⁾ Additionally, Lee et al. conducted interviews with dementia patients who participated in music therapy and reported that participating in group music therapy online alleviated feelings of loneliness and made them feel acknowledged by therapists and peers.¹⁶⁾ These findings

suggest that whether patients can feel social connections with therapists and peers through a screen may influence treatment outcomes. Furthermore, Dowson, B. et al. reported that dementia patients who lacked confidence to participate directly in face-to-face music therapy felt less resistance to music therapy via videoconferencing, which made it easier for them to participate and receive treatment.⁸⁾

2. Overview of domestic papers on VCP

While Japanese guidelines on telepsychology are being developed, it has become clear that there are very few domestic papers comparing VCP with face-to-face psychological support.

A characteristic of the present review is that although only five papers were selected, the subjects and interventions were broadly categorized into two groups: (1) counseling for adults with no history of psychiatric treatment, and (2) music therapy for dementia patients and their families. In particular, in the case of dementia patients, if family members or medical professionals can operate the system, the patients themselves can participate in treatment without feeling resistance or anxiety toward videoconferencing tools, making it easier to maintain social connections while receiving treatment. In Japan, there is a suggested need for tele-

psychology for general adults with no history of psychiatric treatment and dementia patients, and so the spread of tele-psychology is expected to continue. In particular, there is a certain level of demand for tele-psychology for dementia patients, who often live in remote areas where music therapy is difficult to access, and they also have difficulty accessing face-to-face psychological support due to the COVID-19 pandemic and other situations involving a high risk of infection.¹⁴⁾¹⁶⁾ Although several case studies using VCP have been reported in Japan, no studies have compared VCP with face-to-face psychological support. Further research is needed to determine the characteristics of VCP and types of patients for whom it is effective when compared with face-to-face psychological support.

The outcomes were evaluated solely by the clients; no evaluation by therapists was conducted. In the future, comprehensive comparative studies incorporating multifaceted evaluations by therapists will be needed.

Conclusion

In this study, we used a scoping review to summarize the characteristics of VCP compared with face-to-face psychological support. The results revealed that VCP can convey emotions and atmosphere as well as verbal

information, compared with face-to-face sessions, and that it is superior to voice-only psychological support in forming therapeutic relationships, but slightly inferior to face-to-face psychological support. Furthermore, regarding music therapy for patients with dementia, although data were not from a randomized controlled trial, the findings suggest that remote music therapy may have equivalent effects to face-to-face music therapy.

Several issues were also identified. Although scoping reviews comprehensively address diverse research designs and set broad research questions,⁵⁾ only five papers were selected for this review, making it difficult to comprehensively review research across a wide range of fields. In the future, it will be important to accumulate clinical research across multiple fields to clarify the characteristics of VCP and determine how it can be used in conjunction with face-to-face psychological support.

The literature search for this study was conducted on July 1, 2020; making it possible that additional research on tele-psychology had been accumulated in Japan since the COVID-19 pandemic. To investigate this, we manually searched for papers published up to September 30, 2022, but found none that met the selection criteria.

Another issue is the diversity of terms used in tele-psychology. Overseas, there is no standardization of terminology beyond VCP, with terms such as tele-psychology and tele-mental health being used. In Japan, in addition to tele-psychology, there are a wide variety of terms such as tele-counseling, tele-psychological counseling, and tele-psychological consultation. To accumulate knowledge in the future, terminology should be standardized in guidelines and other documents.

This study did not examine asynchronous tele-psychology, which has been pointed out as having a low completion rate, but focused on synchronous VCP. In Japan, it has yet to be verified whether synchronous psychological support results in fewer dropouts than asynchronous support. In the future, research will be needed in Japan to compare completion and dropout rates across three types of psychological support: face-to-face psychological support, synchronous VCP, and asynchronous tele-psychology.

There are no conflicts of interest to disclose in relation to this paper.

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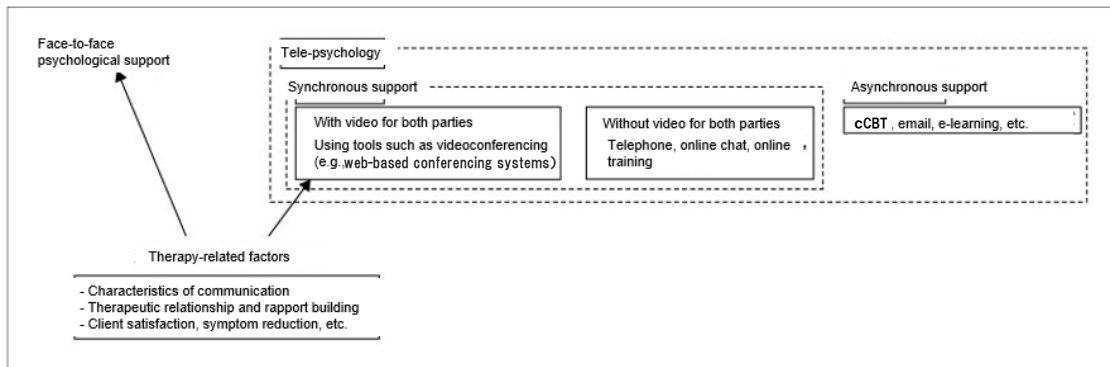


Figure 1: Relationship diagram of areas focused on in this scoping review

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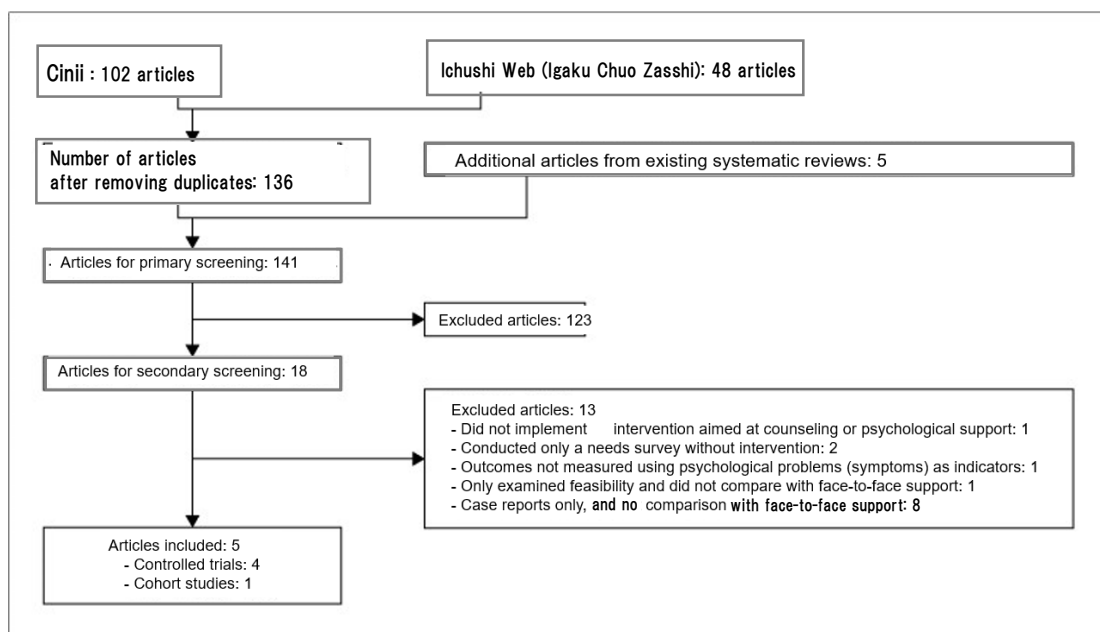


Figure 2: Flowchart of paper selection in accordance with PRISMA-ScR

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Table: Selected papers

Basic information		P : Patient (Subject)	I : Intervention	C : Comparison	O : Outcome		
Research, Research design	Target area, Journal	Subject selection criteria n/age	Intervention overview	Intervention location, communication devices used	(control intervention)	Evaluation scale	Results
No. 1 Kakii (1997) ¹²⁾ Basic research on multimedia counseling using interactive TV Control trial	Individual counseling Psychological research	Working adults who agreed to receive counseling using three methods (face-to-face, TV, and voice) n = 18 (9 males, 9 females) Ages: 20–60 (mean age: not specified)	One fixed counselor provided four 4-minute counseling sessions using each of the three methods to the same subject (counterbalanced design).	Two rooms located in a counseling area adjacent to an educational institution Two-way TV system with cameras arranged in a trunk configuration	Comparison with face-to-face support for the same subjects	Counseling communication evaluation items Free-response questionnaire	The TV method was comparable to face-to-face method in terms of information transmission, with no significant difference. However, the TV method was slightly inferior to face-to-face method in terms of rapport formation.
No. 2 Murase (2006) ²⁰⁾ The effect of remote counseling on state anxiety A comparison of different counseling methods Controlled	Individual counseling Personality research	College students who agreed to receive counseling using three methods (face-to-face, TV, and audio) n = 18 (9 males, 9 females) Ages: 18–24 (mean age: 20.7 years)	Replication of Kakii (1997). A fixed counselor provided 10 minutes of counseling using each one of three methods to the same subject with a counterbalanced design.	Counseling rooms located adjacent to educational institutions, with each session conducted in separate rooms LiveCapture2 (software enabling real-time transmission and ...)	Comparison with face-to-face support for the same participants	Japanese version of the State-Trait Inventory for Anxiety (STAI) (Mizuguchi, Shimonaka, & Nakazato, 1991) State Anxiety Scale (STAI-S) ^{*1}	No significant difference was found between the TV and face-to-face methods, with both showing a significant reduction in state anxiety. In situations where nonverbal information could be obtained, it was noted that participants were more likely to disclose their concerns and show anxiety
No. 3 Kishi, Murase, and Nojima (2007) ¹³⁾ Examination of cognitive evaluation in remote counseling Control trial	Individual counseling Journal of the Japan Society for Educational Technology	College students who agreed to receive counseling using three methods (face-to-face, TV, and voice) (Excluding those currently receiving psychiatric treatment or with a history of outpatient treatment) n=18(9males,9females) Ages: 18–24 (mean age: 20.7 years)	Replication of Kaki (1997) and Murase (2006). One fixed counselor provided 10 minutes of counseling using each one of three methods to the same subject with a counterbalanced design.	two separate rooms adjacent to an educational institution LiveCapture2	Comparison with face-to-face support for the same subjects	Counseling evaluation form based on the “Counseling Communication Evaluation Items” (Kakii, 1997) Semi-structured interview	There was no significant difference between TV and face-to-face methods in terms of the counselor’s evaluation of “accepting attitude” and “favorable recognition.” The TV method was found to result in a slightly lower level of intimacy with the counselor than face-to-face method.
No. 4 Hori, Iizuka, Nakamura et al. (2014) ¹⁰⁾ Controlled trial	Geriatric medicine Cancer and chemotherapy	Dementia patients undergoing outpatient treatment at a neurology clinic and their family caregivers; the caregivers were able to operate video-conferencing equipment at home n=3 (sex not specified)63-84years old(average age: 75.67 years)	Cognitive function tests were conducted prior to the intervention, and CDs were created through interviews with music therapists. Using CDs, nurses conducted face-to-face and video-conferencing interventions over a period of eight weeks with a break in between.	Medical institution and patient’s home Skype	Comparison with face-to-face support for the same subjects	Japanese version of BPAD ²⁾ Smile measurement ^{*3} Self-administered questionnaire	As with face-to-face interventions, there was a tendency toward improvement in smile frequency and BPAD scores after videoconferencing interventions.
No. 5 Kosugi, Kodama, Shimizu et al. (2019) ¹⁵⁾ Effects of remote music therapy on elderly people with dementia Cohort study	Geriatric medicine Journal of the Japanese Society of Telemedicine	Elderly people with dementia who used facilities in four cities (Niigata, Shizuoka, Fukuoka, and Okinawa) and agreed to participate in the study n=51(9 men, 42women) Ages: 60-75 (average age: 84.2±8.0, 2 missing)	Music therapy was conducted at facilities with music therapists, and three facilities were connected via videoconferencing to conduct a clinical trial of remote music therapy.	One facility with an interventionist was connected to three facilities via videoconferencing. Audio: Hikari DUETTO NYI Video: Hikari Share Place	Comparison with face-to-face support group	Cognitive function: MMSE ^{*4} Behavioral and psychological symptoms: NPI ^{*5}	As with face-to-face therapy, there was a significant improvement in the frequency of behavioral and psychological symptoms of dementia, such as anxiety and appetite or eating disorders.

*1 STAI—S: The “State Anxiety Scale” of the Japanese version of STAI (State—Trait Anxiety Inventory), used to measure state anxiety in therapy settings, such as resistance or anxiety toward receiving therapy.

*2 Japanese version of BPAD (Behavior Pathology in Alzheimer’s Disease): Used to measure behavioral and psychological symptoms that emerge as dementia progresses.

*3 Smile measurement (Smile Scan Ver. 3): A device that automatically detects the degree of smiling (0–100%) in real-time from images captured by a camera, used to measure changes in the degree of smiling before and after intervention.

*4 MMSE (Mini-Mental State Examination): Used to assess cognitive function.

*5 NPI (Neuropsychiatric Inventory): Used to measure behavioral and psychological symptoms that appear with the progression of dementia.

Table: Selected papers