文 教 大 学

大学院人間科学研究科

臨床心理学専攻博士課程

２０２５年度（２月１５日）

入学試験問題

英　　語

受　験　番　号	氏　　名

添付する次の論文を読み、以下の問いに答えなさい。解答は、解答用紙に記入すること。

出典：Okada, H., & Wakasaya, K. (2016). Dreams of hearing-impaired, compared with hearing, individuals are more sensory and emotional. Dreaming, 26(3), 202—207

問１　この論文の Abstract を日本語に訳しなさい（500 字前後）

問２　この論文の結果について、日本語で考察しなさい。ただし、以下の視点を含むこと。記述に際しては、段落ごとに括弧書きで、その記述に含まれる視点１～６の数字を示すこと（文字数は自由）

1）この研究の仮説について
2）用いられた研究方法について
3）序で引用された先行研究との関係
4）この研究の限界
5）臨床実践への示唆
6）今後の課題と結論

問３　この論文の意義についてコメントしなさい（200 字程度）

Dreams of Hearing-Impaired, Compared With Hearing, Individuals Are More Sensory and Emotional

Hitoshi Okada and Kei Wakasaya
Bunkyo University

An early report suggested that the sensory content of dreams differed between those who are and are not hearing impaired; more recent studies have indicated there are no differences. We surveyed 86 students attending a special needs school for the deaf regarding sensory content of their dreams, and compared the results with those of 344 hearing students attending an ordinary high school. Participants were given a 25-item questionnaire regarding remembered dreams of the preceding month that measured dream recall frequency, vividness of dreams, and the frequency of experience of 9 sensory modalities and 10 emotions. The results indicated that by controlling for dream recall frequency, the hearing-impaired participants experienced nightmares, lucid dreams, taste, smell, pain, temperature, hope, anger, fear, tense feelings, surprise, and shame more often and hearing less often than the hearing participants.

Keywords: dream recall, emotions, hearing impairment, sensory modalities

The first experimental study of dreaming in hearing-impaired people was reported by Max (1935). To examine the motor theory of consciousness, he measured the action currents from the finger and arms while participants were sleeping. Large action-current responses in the arm and finger muscles appeared at the onset of dreams in the hearing-impaired participants, suggesting that dreams were detectable by an objective electrical method. Thirty years later, after the discovery of REM sleep, Stoyva (1965) reexamined Max's findings. He reported no differences between hearing-impaired and hearing participants with respect to the amount of finger EMG activity in any stage of sleep.

The similarities and differences in the dream content of a person with hearing loss compared with that of a hearing person have continued to be a matter of debate. Mendelson, Siger, and Solomon (1960) conducted semistructured psychiatric interviews about dreams with participants having congenital deafness, deafness acquired before age five, and deafness acquired later. They found that dream

This article was published Online First August 22, 2016.
Hitoshi Okada and Kei Wakasaya, Department of Human Sciences, Bunkyo University.
Kei Wakasaya is now at Welbe, Inc. Soka, Satiama, Japan.
This work was supported by JSPS KAKENHI Grant JP12345678.
Correspondence concerning this article should be addressed to Hitoshi Okada, Department of Human Sciences, Bunkyo University, 3337 Minamiogishinma, Koshigaya, Saitama 343-8511, Japan. E-mail: hokada@koshigaya.bunkyo.ac.jp

Dreaming
2016, Vol. 26, No. 3, 202–207

1053-0797/16/$12.00 http://dx.doi.org/10.1037/drm0000026

recall frequency, perceptual experience of color, vividness, and depth of spatial quality were increased in those with congenital deafness compared to those having deafness acquired after age five. Dreams of the congenitally deaf participants were reported as vivid, brilliantly colored, and frequent in occurrence.

Mendelson et al. (1960) suggested the perceptual quality and experience frequency of dreams of a person with hearing loss were different from those of hearing participants. However, subsequent work could not replicate their findings. Stoyva (1965) reported that the mean frequency of recall from REM periods for hearing and hearing-impaired groups was essentially similar. Gilliland and Stone (2007) compared communication and colors occurring in dreams using a 26-item dream evaluation questionnaire. They found that hearing-impaired and hearing people show no difference in the experience of color in dreams and communicate in their dreams in much the same way as they do when awake. Voss, Tuin, Schermelleh-Engel, and Hobson (2011) contrasted dream reports of congenitally deaf-mute and congenitally paraplegic individuals with those of nonhandicapped controls by asking them to write down their dreams over 2-week periods. They reported that dream form and content of sensorially limited persons was indifferent from those of nonhandicapped controls.

A study of auditory impairment showed that sensory and cognitive compensation occur in hearing-impaired participants (Bäckman & Dixon, 1992). The effects of deafness are not limited to the sensory level but expand into emotional-social behaviors (Corina & Singleton, 2009). Contents of dreams are somewhat limited by the physical condition of the dreamer, which Hobson stated, as follows: "I have no doubt that the continuity hypothesis is valid" (Hobson & Schredl, 2011, p. 3). It is natural to think that auditory impairment is reflected in dreams and that, as a result, auditory-handicapped participants less experienced sound and more experienced other sensory modalities compared to nonhandicapped participants. Although Mendelson et al. (1960) reported that no sound appeared in the dream with participants having congenital deafness, the later studies (Gilliland & Stone, 2007; Voss et al., 2011) could not detect these differences. It might be that the focused aspects were limited and the number of participants was small in those studies. We surveyed the experienced frequency of nine sensory modalities and 10 emotional aspects in dreams of hearing and hearing-impaired students and also compared the contents of their dreams.

Method

Participants

The participants with hearing impairment were 86 students (48 males and 38 females) with a mean age of 16.6 years (range = 15–20 years) who attended the Special Needs Education School for the Deaf, University of Tsukuba. These students have a hearing level of 60 dB or more in both ears or find it impossible or very difficult to hear ordinary voices even with the use of a hearing aid.

The participants with ordinary hearing were 344 high school students (127 males and 217 females) with a mean age of 16.7 years (range = 15–18 years) in Omiya Nishi High School.

Students completed the questionnaire in their homeroom classes. Responses were completed voluntarily and anonymously.

Measurement

Based on the report of Okada, Matsuoka, and Hatakeyama (2005), we constructed a 25-item questionnaire to measure dream recall frequency, vividness of dreams, frequency of experience of nine sensory modalities, and frequency of 10 emotions in remembered dreams of the preceding month.

Dream Recall Frequency

Nightmare, lucid dream, and dream recall frequencies were rated using seven levels of response: 1 (*every day*), 2 (*almost every day*), 3 (*once every two days*), 4 (*once or twice a week*), 5 (*once or twice a month*), 6 (*seldom*), and 7 (*never*).

Vividness of Dreams

The vividness of dreams was rated with four levels of response: 1 (*perfectly clear and as vivid as normal experience*), 2 (*clear and reasonably vivid*), 3 (*moderately clear and vivid*), and 4 (*vague and dim*).

Frequency of Experience of Sensory Modalities

Regarding sensory aspects of dreaming, 11 items were created to assess the frequency of experiencing visual, color, auditory, cutaneous, kinesthetic, gustatory, olfactory, visceral, pain, and temperature sensations in remembered dreams of the preceding month. Participants were asked to use five levels of response: 1 (*always*), 2 (*sometimes*), 3 (*occasionally*), 4 (*seldom*), and 5 (*never*).

Frequency of Experience of Emotions

The frequency of experience of 10 emotions in remembered dreams (joy, hope, happiness, anger, sadness, fear, tense feeling, anxiety, surprise, and shame) was assessed using six levels of response: 1 (*always*), 2 (*often*), 3 (*sometimes*), 4 (*occasionally*), 5 (*seldom*), and 6 (*never*). Emotion is frequently experienced in dreams (e.g., Domhoff, 2007); therefore, an additional level of response was added between "always" and "sometimes" to increase the sensitivity of the "frequent" side of the scale.

Results

The means and standard deviations of responses for each item are shown in Table 1. Results for all items except color and joy were significantly different

Table 1
Individual Item Scores for Each Group

Item	Hearing impaired			Hearing			MANCOVA controlling for DRF	η^2
	M	*SD*	*N*	*M*	*SD*	*N*		
Nightmare	5.51	1.32	86	6.06	.89	344	**	.021
Lucid dream	4.96	1.79	85	5.48	1.34	341	*	.013
Dream recall frequency	3.25	1.64	85	3.93	1.47	344		
Dream vividness	1.93	.84	83	2.26	.84	344	**	.018
Vision	1.66	.96	85	2.03	1.15	343	*ns*	.004
Color	1.74	1.17	85	1.78	1.17	342	*ns*	.002
Hearing	2.68	1.53	85	2.1	1.3	344	***	.056
Speaking	2.23	1.3	84	2.51	1.3	343	*ns*	.002
Cutaneous	2.77	1.43	83	3.25	1.34	344	*ns*	.004
Movement	1.68	1.09	85	1.91	1.18	340	*ns*	.000
Taste	3.61	1.34	85	4.13	1.02	342	***	.026
Smell	3.76	1.32	84	4.13	1.03	343	*	.011
Visceral sensation	3.35	1.4	85	3.71	1.21	344	*ns*	.005
Pain sensation	3.41	1.35	86	3.93	1.16	344	*	.015
Temperature	3.16	1.43	86	3.96	1.08	343	***	.047
Joy	2.61	1.53	85	2.82	1.3	342	*ns*	.000
Hope	2.82	1.6	85	3.37	1.38	342	*	.012
Happiness	2.86	1.63	85	3.15	1.38	343	*ns*	.002
Anger	3.45	1.64	85	4.16	1.37	343	**	.024
Sadness	3.3	1.6	83	3.62	1.4	342	*ns*	.001
Fear	2.67	1.54	85	3.26	1.39	343	*	.013
Tense feeling	2.93	1.66	83	3.76	1.43	342	***	.030
Anxiety	3.22	1.62	85	3.62	1.43	343	*ns*	.004
Surprise	3.02	1.66	85	3.61	1.44	340	*	.012
Shame	3.99	1.88	85	4.53	1.31	342	*	.010

Note. MANCOVA = multivariate analysis of covariance; DRF = Dream Recall Frequency.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

between hearing and hearing-impaired participants (by two-sample *t* tests). As results for almost all items were significantly different, a common factor might cause these differences. One potentially influential factor is dream recall frequency. After controlling for dream recall frequency (Wilks's $\lambda = 0.661$), $F(25, 370) = 7.575$, $p < .0001$, $\eta^2 = 0.339$, a one-way multivariate analysis of covariance with 24 scores by group still indicated a significant difference (Wilks's $\lambda = 0.766$), $F(25, 370) = 4.532$, $p < .0001$, $\eta^2 = 0.234$. The univariate analysis indicated that 10 items were not significantly different after controlling for the dream recall frequency. However, hearing-impaired participants experienced nightmare, lucid dream, taste, smell, pain, temperature, hope, anger, fear, tense feeling, surprise, and shame more often and hearing less often than hearing participants (see Table 1).

Discussion

The mean score for each item indicated that the hearing-impaired students experienced more sensory and emotional dreams more frequently than the hearing students. However, these effects were limited after controlling for the dream recall frequency. For sensory modalities, Okada, Matsuoka, and Hatakeyama (2005)

reported that the sensations in dreams classified into normally and frequently experienced groups (major perception; visual, auditory and kinesthetic sensations) and an infrequently experienced group (minor perception; cutaneous, gustatory and olfactory sensations). The present results showed that hearing-impaired students more often experienced the minor perception modalities—especially gustatory, olfactory, pain, and temperature sensations. Although the studies of sensory and cognitive compensation occurring in auditory-handicapped participants have focused on the visual sensation (Bäckman & Dixon, 1992), the present results suggest that compensation may extend to cutaneous, gustatory and olfactory sensations. As for emotional aspects, hearing-impaired participants experienced tense feelings, anger, fear, surprise, shame and hope more often than hearing participants. The fact that the effect sizes (the eta squared results shown in Table 1) for tense feeling, anger and nightmare are relatively markedly large might mean hearing-impaired students feel more stress than hearing participants. Fellinger, Holzinger, Sattel, and Laucht (2008) reported that hearing-impaired pupils had more conduct, emotional, and peer problems than controls. Our present results suggest that such waking mental problems are reflected in the dreams of hearing-impaired participants.

These results partly support the findings of Mendelson et al. (1960) with respect to perceptual aspects, except for color. They are also consistent with Gilliland and Stone (2007) and Voss et al. (2011), because the frequency of color perception was not different between the groups. Voss et al. (2011) reported that dream form and content of sensory-limited persons were not different from those of nonhandicapped controls regarding the modalities of movement, speech, color, aroma perception, and touch. In the present study, most of these modalities were not different after controlling for the dream recall frequency, consistent with those studies. Voss et al. (2011) may not have been able to find differences for smell and touch because our results indicate that these modalities appear rarely in dreams (see Table 1), and the number of participants enrolled might have been too small to detect a difference.

Mendelson et al. (1960) presented three hypotheses to interpret the differences found between hearing-impaired and hearing individuals: soundless awakening, sensory deprivation, and psychoanalytic interpretation. The sensory deprivation hypothesis might be supported by the present results, which suggest the possibility that sensory compensation occurred in the dreams of hearing-impaired participants. Why does compensation only occur in these modalities: gustatory, olfactory, pain, and temperature, but not in visual? One possibility is that although hearing-impaired participants may experience all sensory modalities more frequently than hearing participants, some artifacts partially canceled the differences. Okada, Matsuoka, and Hatakeyama (2005) indicated that the frequency of experience of various sensory modalities in dreams could be classified into Major Perception Modalities, which included visual, auditory, and kinesthetic sensation, and Minor Perception Modalities, which included cutaneous, gustatory, and olfactory sensation. In the present study, the mean score of the Major Perception Modalities may be low enough to cause the floor effect both in hearing impaired and hearing group, whereas those of Minor Perception Modalities are high enough to discriminate both groups.

Shredl (2007) pointed out that the assessment of subjective frequency has many methodological issues. An experiment using a REM-awakening technique or a survey relying on dream diaries may be more fruitful for the study of the dream content of people with hearing impairment.

References

Bäckman, L., & Dixon, R. A. (1992). Psychological compensation: A theoretical framework. *Psychological Bulletin, 112,* 259–283. http://dx.doi.org/10.1037/0033-2909.112.2.259

Corina, D., & Singleton, J. (2009). Developmental social cognitive neuroscience: Insights from deafness. *Child Development, 80,* 952–967. http://dx.doi.org/10.1111/j.1467-8624.2009.01310.x

Domhoff, G. W. (2007). Realistic simulation and bizarreness in dream content: Past findings and suggestions for future research. In D. Barrett & P. McNamara (Eds.), *The new science of dreaming, Vol. 2: Content, recall, and personality correlates* (pp. 1–27). Westport, CT: Praeger/Greenwood Publishing Group.

Fellinger, J., Holzinger, D., Sattel, H., & Laucht, M. (2008). Mental health and quality of life in deaf pupils. *European Child & Adolescent Psychiatry, 17,* 414–423. http://dx.doi.org/10.1007/s00787-008-0683-y

Gilliland, J., & Stone, M. (2007). Color and communication in the dreams of hearing and deaf persons. *Dreaming, 17,* 48–56. http://dx.doi.org/10.1037/1053-0797.17.1.48

Hobson, J. A., & Schredl, M. (2011). The continuity and discontinuity between waking and dreaming: A dialogue between Michael Schredl and Allan Hobson concerning the adequacy and completeness of these notions. *International Journal of Dream Research, 4,* 3–7.

Max, L. W. (1935). An experimental study of the motor theory of consciousness. III. Action-current responses in deaf-mutes during sleep, sensory stimulation and dreams. *Journal of Comparative Psychology, 19,* 469–486. http://dx.doi.org/10.1037/h0061830

Mendelson, J., Siger, L., & Solomon, P. (1960). Psychiatric observations on congenital and acquired hearing impairedness: Symbolic and perceptual processes in dreams. *The American Journal of Psychiatry, 116,* 883–888. http://dx.doi.org/10.1176/ajp.116.10.883

Okada, H., Matsuoka, K., & Hatakeyama, T. (2005). Individual differences in the range of sensory modalities experienced in dreams. *Dreaming, 15,* 106–115.

Shredl, M. (2007). Dream recall: Models and empirical data. In D. Barrett & P. McNamara (Eds.), *The new science of dreaming, Vol. 2: Content, recall, and personality correlates* (pp. 79–114). Westport, CT: Praeger/Greenwood Publishing Group.

Stoyva, J. M. (1965). Finger electromyographic activity during sleep: Its relation to dreaming in deaf and normal subjects. *Journal of Abnormal Psychology, 70,* 343–349. http://dx.doi.org/10.1037/h0022511

Voss, U., Tuin, I., Schermelleh-Engel, K., & Hobson, A. (2011). Waking and dreaming: Related but structurally independent. Dream reports of congenitally paraplegic and deaf-mute persons. *Consciousness and Cognition, 20,* 673–687. http://dx.doi.org/10.1016/j.concog.2010.10.020