DIFFERENCES IN ONOMATOPOEIA USED BY JAPANESE MEN AND WOMEN IN SOCIAL MEDIA TWITTER

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Abstract

Japanese onomatopoeia, often referred to as *giongo* and *gitaigo*, is a word used to describe a sound or situation where the meaning of the word is derived from it's sounds or what it describes. While there have been many studies on Japanese onomatopoeia, there have not been many studies on the comparison of differences in usage. This study looked at the onomatopoeia used on Twitter by Japanese men and women in their 20s and 30s, and there were three main points that emerged from the study. First, compared to the same number of people posting at a single point in time, women were more likely than men to use onomatopoeia on Twitter. Secondly, for both men and women, the most commonly used onomatopoeia is めちゃめちゃ(*mechamecha*). Women use どきどき(*dokidoki)* more, while men use わくわく(*wakuwaku)* more. In addition, there was a significant difference in the use of わくわく(*wakuwaku)* between men and women. Finally, the most commonly used part of speech for onomatopoeia on Twitter was 副詞(*fukushi*/adverb), both for men and for women. While there are differences in how men and women use onomatopoeia, there are also some similarities.

Keywords: twitter, japanese, women, men

1. Introduction

According to Ono [3] onomatopoeia is a general term for words that are also called *giongo* (or *giseigo*), *gitaigo*, etc. While there have been many studies of Japanese onomatopoeia, there have not been as many studies of onomatopoeia used in social media. Twitter is one of the most used social media in Japan, with 42.3% of users in 2020, according to a 2021 survey on information and communication media usage time and information behaviour conducted by the National Institute of Information and Communications Policy Ministry of Internal Affairs and Communications [10]. The purpose of this study was to clarify the onomatopoeia used on Twitter, which is one of the most widely used social media in Japan.

Twitter is a microblogging service application developed by Twitter Incorporated in 2006 that allows users to post 'tweets' of up to 140 characters and exchange information with other users in response to those posts [7]. In addition, it is possible to search for relevant tweets and to make use of a number of features in order to collect data for the study. One of these features is the 'advanced search' function of Twitter. Twitter's advanced search allows for a detailed search of 'tweets' within a specific time period for a specific user only, with newer 'tweets' being displayed chronologically in relation to older 'tweets'.

A study conducted by Arista [5] revealed what onomatopoeia is used in the social media Twitter. The data collected consisted of tweets posted by eight celebrities between March 2013 and June 2014. The data collected revealed that 25 onomatopoeia were found, with the most common type of onomatopoeia being *gitaigo*. Arista's study did not reveal the differences between men and women, so the aim of this study is to reveal the differences. As Arista's study was conducted 10 years apart from this study, the rate of use on Twitter is very different, and the number of onomatopoeias that appear was expected to produce very different results.

Next, a study conducted by He [9] identified differences in the use of onomatopoeia in men's and women's fashion magazines. The results showed that women's magazines used more onomatopoeia than men's magazines. It was found that 1,287 onomatopoeia were found in 1006 pages of men's magazines, while 1,974 onomatopoeia were found in 887 pages of women's magazines. Furthermore, Hirata [6] conducted a study on the use of

onomatopoeia in everyday conversation and found that women tended to use more onomatopoeia overall.

Previous studies show that women use onomatopoeia more than men. So what are the similarities or differences between the onomatopoeia used by men and women on Twitter? And which onomatopoeia are used most often by men and women? Finally, is there a significant difference in the use of onomatopoeia between men and women? These questions will be answered in this study.

2. Methods

The data on this study was based on a website that compiles Twitter accounts of Japanese celebrities, and the target Twitter users were randomly selected and collected. This study basically used a qualitative method, where the data obtained were analysed by referring to the onomatopoeia dictionary and many previous studies on onomatopoeia. Using a dictionary of onomatopoeia as a reference, onomatopoeia was searched using Twitter's advanced search for the collected accounts. The target onomatopoeia was taken from Ono [3] "日本語オノマトペ辞典：擬音語・擬態語 4,500" (*Nihongo Onomatope Jiten : Giongo Gitaigo 4500*/Japanese Onomatopoeia Dictionary: Onomatopoeia and Mimetic Words 4,500), and the onomatopoeia used by each user was examined.

For the next part of the analysis of the data, a little bit of quantitative method was used. First, this study used Twitter to collect data. Data was collected from 'tweets' posted between 1 January 2023 and 31 January 2023 on a total of 60 twitter accounts, 30 women and 30 men. The collected data was then compiled into text files and analysed for the most commonly used onomatopoeia between men and women using KHCoder's correspondence analysis and co-occurrence relation network functions. Finally, the results analysed by KHCoder were further analysed in detail using EZR with Fisher's exact test, a type of analysis method, to see if there was a significant difference in the use of onomatopoeia between men and women.

3. Results and Discussion

Onomatopoeia Used Between Men and Momen

The analysis using KHCoder produced many results: First, we used KHCoder's word frequency list feature to see what onomatopoeia was being used on Twitter. Secondly, we were able to see what kind of word each onomatopoeia was, and how many of them there were.
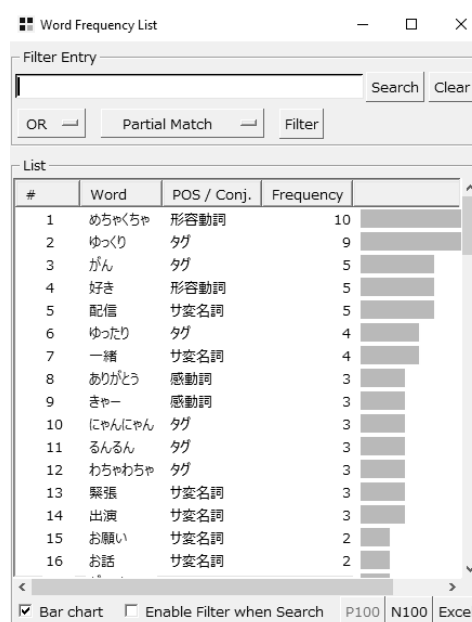

Figure 1. Features of KHCoder's Words Frequency List

The data obtained showed that the number of onomatopoeia used by women on Twitter was 86. In contrast, the number of onomatopoeia used by men on Twitter was 38. Of the onomatopoeia used by both men and women, the following 21 onomatopoeia were the most common for both men and women together.

Table 1. Onomatopoeia most used by women and men

	Women	Man
1	*Mechamecha*（めちゃめちゃ）(40)	*Mechamecha*（めちゃめちゃ）(28)
2	*Dokidoki*（どきどき）(21)	*Wakuwaku*（わくわく）(12)
3	*Shikkari*（しっかり）(14)	*Shikkari*（しっかり）(8)
4	*Yukkuri*（ゆっくり）(9)	*Yukkuri*（ゆっくり）(5)
5	*Pyonpyon*（ぴょんぴょん）(6)	*Guruguru*（ぐるぐる）(3)
6	*Sorosoro*（そろそろ）(5)	*Ehehe*（えへへ）(2)
7	*Nikoniko*（にこにこ）(4)	*Sorosoro*（そろそろ）(2)
8	*Batabata*（ばたばた）(4)	*Dondon*（どんどん）(2)
9	*Yuttari*（ゆったり）(4)	*Bikkuri*（びっくり）(2)
10	*Waiwai*（わいわい）(4)	*Waa*（わーっ）(2)
11	*Wakuwaku*（わくわく）(4)	

This study found similarities and differences in the onomatopoeia used by each gender. First, as a similarity, it was found that the most commonly used onomatopoeia for both men and women is めちゃめちゃ(*mechamecha*). Furthermore, we found that しっかり(*shikkari*) and ゆっかり (*yukkuri*) are commonly used by both men and women. On the other hand, significant differences were found in the use of わくわく(*wakuwaku*) between men and women, with men tending to use わくわく(*wakuwaku*) more often.

Table 2. Same onomatopoeia most used by men and women

Onomatopoeia	Women	Men	p value
Mechamecha（めちゃめちゃ）	40	28	
Wakuwaku（わくわく）	4	12	
Shikkari（しっかり）	14	8	.0949
Yukkuri（ゆっくり）	9	5	
Sorosoro（そろそろ）	5	2	

（† : $p<0.1$、* : $p<0.05$、** : $p<0.01$、*** : $p<0.001$、 n.s. : non-significant）

Next, we found that of the 10 onomatopoeia most commonly used by men and women, five were the same: めちゃめちゃ(*mechamecha*), わくわく(*wakuwaku*), しっかり(*shikkari*), ゆっかり (*yukkuri*) and そろそろ(*sorosoro*). Further analysis was then carried out using Fisher's exact test to see if there was a significant difference in the onomatopoeia used by men and women. A post-hoc test was then conducted to determine which onomatopoeic words had a significant difference, and a significant gender difference was found in the use of わくわく(*wakuwaku*).
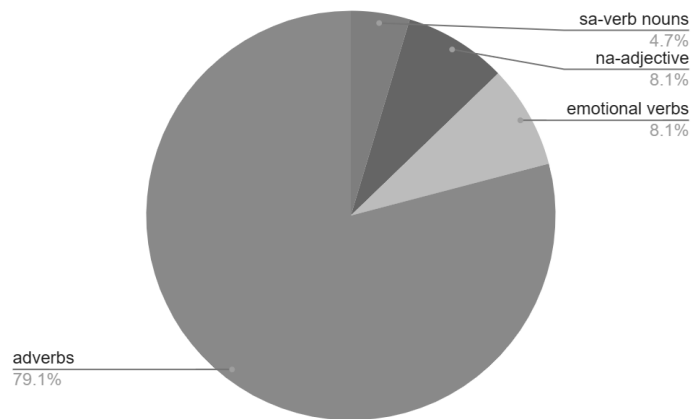
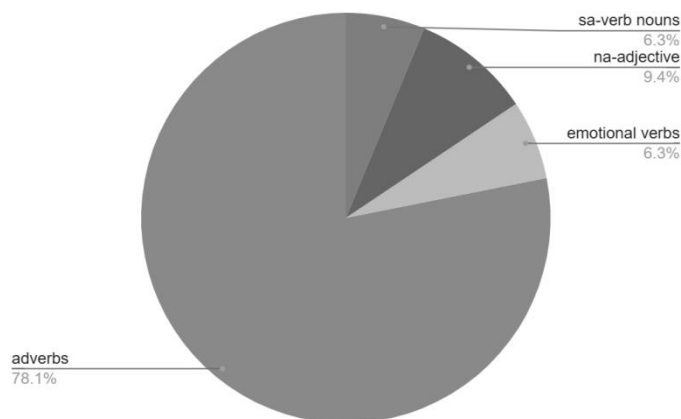Figure 2. Parts of speech of onomatopoeia used by women

Figure 3. Parts of speech of onomatopoeia used by men

The figure above shows the part of speech of onomatopoeia used by women and men on twitter. The vertical axis on the left shows the number of each part of speech, while the horizontal axis shows the type of part of speech used. For both men and women, the parts of speech of onomatopoeia used on Twitter are divided into four categories: *sahen-meishi* (verb formed by adding *suru* to a noun), *na*-adjective, emotional verbs and adverbs. The figure above shows that there is no significant difference in the part of speech of onomatopoeia used between men and women. This result also shows that the part of speech 'adverb' is the most used by both men and women. Mikami [1] conducted a survey on the use of onomatopoeia in everyday conversation and found that most onomatopoeia was classified as adverb or *na*-adjective. In contrast, the results of this study show that onomatopoeia using the adverb part of speech is most commonly used on Twitter, while onomatopoeia using the *na*-adjective part of speech is less commonly used. However, in terms of the overall ranking, *na*-adjective was the second most common for both men and women.

KHCoder Analysis

A KHCoder correspondence analysis was performed to identify the onomatopoeia most commonly used by each gender for each age group. First, the analysis of the women's data identifies the onomatopoeia most commonly used by each age group of women, as well as the onomatopoeia most commonly used by both age groups. While it is clear that わくわく (*wakuwaku*) is the most commonly used onomatopoeia among women, わくわく(*wakuwaku*) is used in a variety of forms. It was found that the form めちゃくちゃ(*mechakucha*) tends to

be used more by women in their 20s, while the form めっちゃ(*meccha*) is used more by women in both their 20s and 30s. Furthermore, among the onomatopoeia most commonly used by women, differences were found between the onomatopoeia used by women in their 20s and those used by women in their 30s. It was also found that ゆったり (*yuttari*) is frequently used by women in their 20s, while ゆっくり(*yukkuri*), そろそろ(*sorosoro*), ばたばた(*batabata*), わいわい(*waiwai*) and わくわく(*wakuwaku*) are frequently used by women in their 30s. In addition, どきどき(*dokidoki*), ぴょんぴょん(*pyonpyon*) and にこにこ(*nikoniko*) were found to be used more by women in their 20s. Next, the analysis of men's data shows that there appears to be less variation in onomatopoeia use among men than among women. While there was no significant use at all by men in their 30s, men in their 20s were found to use the onomatopoeic words びっくり(*bikkuri*) and めちゃめちゃ(*mechamecha*) frequently. This may be because men use onomatopoeia less frequently than women, so the difference itself is less visible, making it difficult to compare the onomatopoeia used by each age group between men and women.

KHCoder's co-occurrence network analysis identified which words are commonly used with onomatopoeia on Twitter.
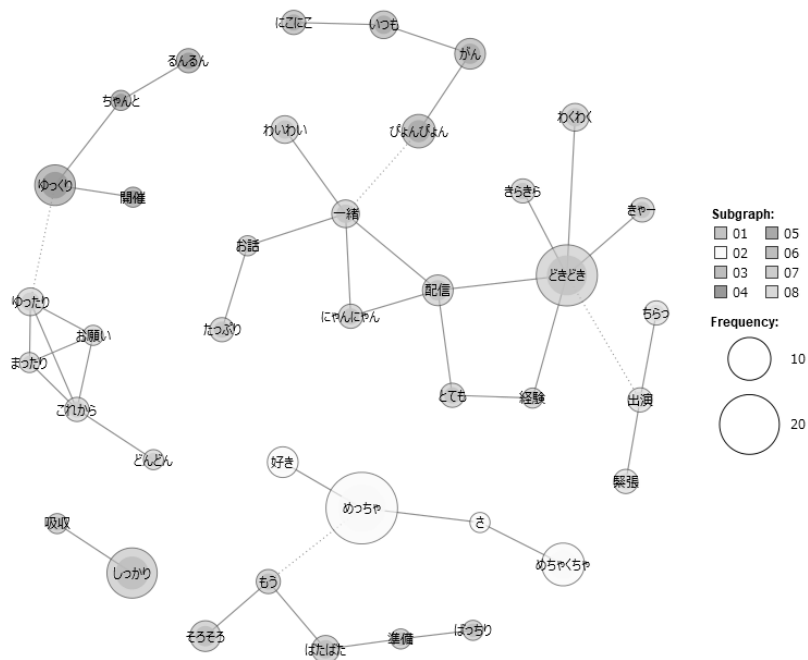

Figure 4. Co-occurrence Networks of Onomatopoeia Used by Men

First, a variety of words were founded from the women's data analysis, and it was found that the onomatopoeic words きらきら(*kirakira*), わくわく(*wakuwaku*), and きゃー(*kyaa*) are often used together with the word どきどき(*dokidoki*), which is the second most frequently used onomatopoeia among women.

1. "今回の合同ライブ
キラキラドキドキが溢れてて、最高の最強に楽しすぎます！！"
(*Konkai no gōdō raibu **Kirakira Dokidoki** ga afuretete, saikō no saikyō ni tanoshi sugimasu! !/* This joint live performance, It's full of sparkles and pounding, it was the best and too much fun!)

(28 January 2023 Tweet)

2. "あけましておめでとうございます

2023 年<u>ドキドキワクワク</u>”
(*Akemashite omedetō gozaimasu. 2023-nen **Dokidoki Wakuwaku**/*Happy New Year. I'm so excited for 2023 my heart is pounding!)

<div align="right">(1 January 2023 Tweet)</div>

3. "＼いよいよ明日！！／
TV アニメ『D4DJ All Mix』放送です
<u>きゃ〜ドキドキっ</u>”
(*Iyoiyo ashita！！ TV anime "D4DJ All Mix" hōsōdesu. **Kya~ Dokidoki~**/*Tomorrow is finally the day! The TV anime "D4DJ All Mix" will air! aaa I'm so excited!)

<div align="right">(12 January 2023 Tweet)</div>

And it was found that women often used the onomatopoeia めちゃめちゃ (*mechamecha*) together with the word 好き(*suki*/like).

1. "これ<u>めっっっっっちゃ好き</u>"
(K*ore **Meccccha Suki**/*I love this one sooooo much!)

<div align="right">(1 January 2023 Tweet)</div>

2. "みんなのことが<u>めっっっっちゃ好き</u>やで"
(*Min'na no koto ga **Mecccha Suki** yade/*I love you guys soooo much!)

<div align="right">(22 January 2023 Tweet)</div>

As for the other words often used with other onomatopoeia, the results are not considered significant because of the low frequency with which they occur.
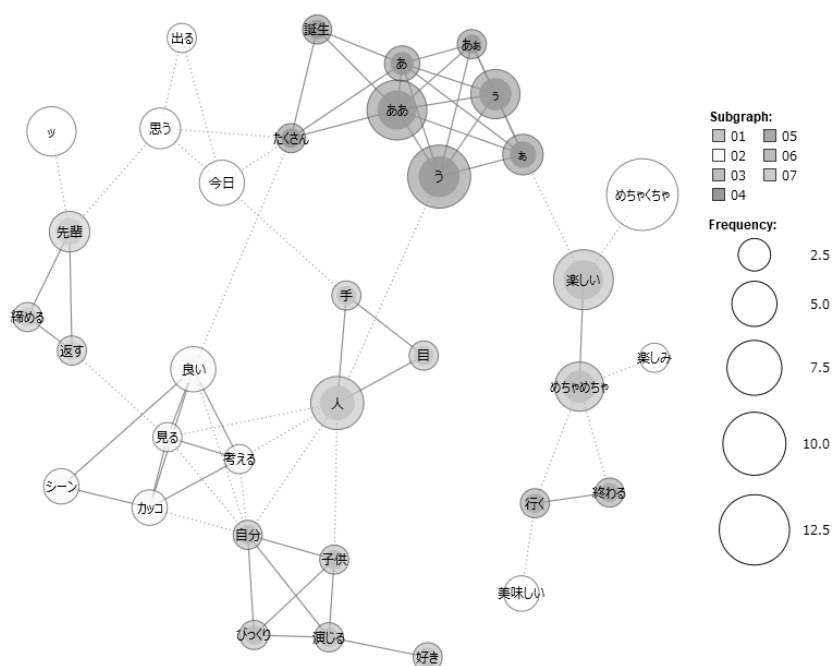

Figure 5. Co-occurrence Networks of Onomatopoeia Used by Men

Similar to the correspondence analysis, the results of the co-occurrence network analysis for men show that the onomatopoeia used by men are few. First, it was found that the only onomatopoeia found in the co-occurrence network of onomatopoeia used by men was めちゃくちゃ(*mechakucha*) or びっくり (*bikkuri*). Furthermore, each word used with び

っくり(*bikkuri*) is rare, so the result could not be considered significant. However, it can be seen that 楽しい(*tanoshii*/fun) or 楽しみ(*tanoshimi*/looking forward to) is often used with the onomatopoeia めちゃくちゃ(*mechakucha*).

1. "（めちゃめちゃ楽しかった〜）"
((***Mechamecha Tanoshikatta~***)/(It was so much fun!))

(7 January 2023 Tweet)

2. "めちゃめちゃ楽しくてずっと笑ってました！"
(***Mechamecha Tanoshikute*** *zutto warattemashita!*/It was so much fun and we laughed the whole time!)

(22 January 2023 Tweet)

3. "めちゃめちゃ楽しみですねぇ！！！"
(**Mechamecha Tanoshimi desu nē！！！**/I'm really looking forward to it!)

(30 January 2023 Tweet)

Discussion of Each Onomatopoeia

First, Ono [3] describes めちゃくちゃ(*mechakucha*) as a state of being completely irrational, doing things without thinking about what will happen next, a state of being out of proportion, and めちゃめちゃ(*mechamecha*). In other words, めちゃくちゃ(*mechakucha*) is going beyond a certain degree. The most used onomatopoeia for both men and women was めちゃめちゃ(*mechamecha*), but the onomatopoeia めちゃめちゃ(*mechamecha*) was used in different forms on Twitter. The onomatopoeia that appeared showed four main forms of use: めちゃ(*mecha*), めっちゃ(*meccha*), めちゃめちゃ(*mechamecha*) and めちゃくちゃ(*mechakucha*).

1. "桜、めちゃキレイ…"
(*Sakura,* ***Mecha*** *kirei…*/Cherry blossoms, so beautiful...)

(14 January 2023 Tweet)

2. "めっちゃ楽しかったです！"
(***Meccha*** *tanoshikattadesu!*/It was so much fun!)

(1 January 2023 Tweet)

3. "収録楽しすぎて終わったあとめちゃめちゃラーメン食べに行きました"
(*Shūroku tanoshi sugite owatta ato* ***Mechamecha*** *rāmen tabe ni ikimashita*/We had so much fun at the recording session that we went out afterwards and ate a lot of ramen noodles!)

(10 January 2023 Tweet)

4. "お洋服もめちゃくちゃ可愛くてテンション高まりました!"
(*Oyōfuku mo* ***Mechakucha*** *kawaikute tenshon takamarimashita!*/The clothes were so cute, I was so excited!)

(20 January 2023 Tweet)

Referring to the definitions of めちゃくちゃ (*mechakucha*) and めちゃめちゃ (*mechamecha*) in Ono [3] and looking at the context of tweets めちゃ(*mecha*), めっちゃ (*meccha*), めちゃめちゃ(*mechamecha*) and めちゃくちゃ(*mechakucha*), it was found that these four onomatopoeia were used in similar contexts and meanings, so these onomatopoeia were judged to be the same onomatopoeia in the classification.

Next are the onomatopoeia どきどき(*dokidoki*) and わくわく(*wakuwaku*). The results of this study indicate that わくわく(*wakuwaku*) is used more often by men. It was also found that the second most common onomatopoeia used by women was どきどき(*dokidoki*), while the second most common onomatopoeia used by men was わくわく(*wakuwaku*). Ono [3] defined どきどき(*dokidoki*) as a continuous, violent beating of the heart caused by surprise, fear, anxiety, joy or anticipation, or by vigorous physical activity. As for わくわく(*wakuwaku*), Ono [3] defined it as a feeling of joy and anticipation, or a feeling of restlessness and

agitation due to excitement and fear. In other words, どきどき (*dokidoki*) focuses on excitement and nervousness, while わくわく(*wakuwaku*) focuses on joy and anticipation. Although there are subtle differences in nuance between どきどき(*dokidoki*) and わくわく (*wakuwaku*), both words are considered to express positive emotions. The words that appeared on Twitter were used with the same nuance.

1. "楽しみだ〜〜〜〜**どきどき**！！！"
(*Tanoshimida~~~~**Dokidoki** ! ! !*/I'm looking forward to it. 〜〜〜〜 I'm excited!)
(18 January 2023 Tweet)

2. "めちゃくちゃ楽しみ　**わくわく**だぁ！"
(*Mechakucha tanoshimi **Wakuwaku** da~!*/I'm really looking forward to it, I'm so excited!)
(30 January 2023 Tweet)

Then there is the onomatopoeia ぴょんぴょん(*pyonpyon*). It was found that ぴょんぴょん(*pyonpyon*) is the sixth most commonly used onomatopoeia among women on Twitter. ぴょんぴょん(*pyonpyon*) used on Twitter tended to be used more in tweets related to the New Year. The study collected data from tweets posted between 1 January 2023 and 31 January 2023. Since the Chinese zodiac sign for 2023 was rabbit, the onomatopoeia ぴょんぴょん (*pyonpyon*) was assumed to be commonly used for this reason. Ono [3] defined ぴょんぴょん(*pyonpyon*) as a situation in which someone jumps up and down repeatedly and with ease. Furthermore, a study conducted by Murase and Terayama [4] found that the onomatopoeic ぴょんぴょん(*pyonpyon*) is often associated with the image of a rabbit. Therefore, it is likely that the onomatopoeia ぴょんぴょん(*pyonpyon*) was often used in 2023 because 2023 was the year of the rabbit.

1. "あけましておめでとうございます。
元旦はママがお雑煮を作ってくれて家族でゆっくり過ごせました
昨日の事しか考えてなかったので2023年どんな年にしたいか今考え始めてます。笑
今年は卯年で年女なのですが、**ぴょんぴょん**跳ねすぎず、地に足をつけて頑張ります
今年もよろしくお願いします！"
(**Akemashite omedetōgozaimasu.** *Gantan wa mama ga o zōni o tsukutte kurete kazoku de yukkuri sugosemashita. Kinō no koto shika kangaetenakatta node 2023-nen don'na toshi ni shitai ka ima kangae hajimetemasu. Wara. Kotoshi wa usagi-doshi de toshion'na na no desuga, **Pyonpyon** hane sugizu,chi ni ashi o tsukete ganbarimasu. Kotoshi mo yoroshiku onegaishimasu!*/Happy New Year! On New Year's Day, my mom made *ozoni* and we were able to spend a relaxing time as a family. I was only thinking about yesterday, so now I'm starting to think about what kind of year I want 2023 to be. Lol. This year is the Year of the Rabbit and I am the New Year's Girl, but I will do my best to keep my feet on the ground and not jump around too much! I look forward to working with you again this year!)
(1 January 2023 Tweet)

2. "あけましておめでとうございます！
今年もよろしくね〜〜〜
兎年だ〜！ぴょんぴょん"
(**Akemashite omedetō gozaimasu!** *Kotoshi mo yoroshiku ne~~~ Usagi-doshi da~!* **Pyonpyon**/Happy New Year! I look forward to working with you again this year! It's the Year of the Rabbit~! *pyonpyon*!)
(1 January 2023 Tweet)

3. "ちなみに年越しの瞬間はこんな感じでした
ぴょんぴょんしていこー！！笑 "
(*Chinamini **toshikoshi** no shunkan wa kon'na kanjideshita. **Pyonpyon** shite iko-! ! Wara*/By the way, this is what the New Year's Eve moment looked like. Let's go and jump around! Lol!)
(1 January 2023 Tweet)

Finally, there are onomatopoeia derived from Chinese words. Ono [3] states that Japanese onomatopoeia (*giongo. gitaigo*) in the Japanese language include many words that are derived from Chinese words, in example, those that use the sound readings of Chinese characters. Among the onomatopoeia that appeared in the data of this study, the onomatopoeia derived from the Chinese word, 和気あいあい(*waki-aiai*) was used. Nakazato [2] noted that onomatopoeia derived from the Chinese word are often written in Chinese characters. Onomatopoeia of Chinese origin are often written in Chinese characters, but the onomatopoeia used in the data of this study were written in hiragana. Ono [3] defines 和気あいあい(*waki-aiai*) as a state of being filled with a pleasant atmosphere and gives as an example "和気あいあいたる空気女工の募集は易々として少しの骨をおれなかった" (*wakiaiai taru kuuki jokou no boshuu wa yasuyasu toshite sukoshi no hone wo orenakatta*/The friendly atmosphere and the recruitment of female workers were not easy, and not a few bones were left unturned). Even in the examples given by Ono [3], 和気あいあい(*waki-aiai*) is written in hiragana.

1. "3 姉妹、初集結！
いつも**和気あいあい**
休憩中、こたつで暖をとる 3 姉妹です笑"
(*3 Shimai, hatsu shūketsu! Itsumo **Wakiaiai**. Kyūkei-chū, kotatsu de dan o toru 3 shimaidesu Wara*/Three sisters, gathered for the first time! Always in good harmony! During a break, the three sisters warm themselves with a *kotatsu* (a table over a heater) lol)

(12 January 2023 Tweet)

4. Conclusion

This study examines the onomatopoeia used by Japanese men and women on the social media platform Twitter, revealing differences and similarities between the genders. First, it was found that women use onomatopoeia on Twitter relatively more than men. It was already known from the previous study that women use onomatopoeia more than men, and this study also showed that women tend to use onomatopoeia more than men in different situations. The results also showed that for both men and women, the most commonly used onomatopoeia was めちゃめちゃ(*mechamecha*), followed by しっかり(*shikkari*) and ゆっくり(*yukkuri*). This indicates that there are similarities in the onomatopoeia used by men and women on Twitter. On the other hand, it was found that women use the onomatopoeic word どきどき(*dokidoki*) more often, while men use わくわく(*wakuwaku*) more often. However, both どきどき(*dokidoki*) and わくわく(*wakuwaku*) are considered to be used in a similar way based on their definitions and their contexts on Twitter.

Next, we found that the most used part of speech for onomatopoeia on Twitter is adverb for both men and women, with a part of speech rate of around 80% of the total. Although there are different types of onomatopoeia, the adverb form of onomatopoeia is said to be the most common. Therefore, it was expected that adverb onomatopoeia would be the most common on Twitter. Finally, in terms of onomatopoeia used by each age group between men and women, the results of the analysis show that women in their 20s and 30s use onomatopoeia differently, but men themselves use onomatopoeia less often, so the differences between these age groups were not as great as expected. Furthermore, even in the word co-occurrence network results, women showed more differences, while men showed few differences.

As described above, while there are various differences in the onomatopoeia used by Japanese men and women on the social media Twitter, it was found that there are unexpected similarities. In this study, data was collected using Twitter's advanced search. However, it took a considerable amount of time to collect the data as we had to search each tweet individually for each account. Furthermore, based on the data obtained, it is likely that collecting the same number of tweets from men and women over the same period of time,

rather than focusing on the same period of time, would provide more objective data. Therefore, the need to collect the same amount of data, rather than focusing on the same time period, will be the task for the future study.

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