Language Use and Intimate Partner Violence during Covid-19

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Language-Use and Intimate Partner Violence during Covid-19

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Abstract

The present study investigated to what degree word-use in reader letters, which were sent to The Guardian, reflected the heightened intimate partner violence (IPV) prevalence during the corona virus disease 2019 (Covid-19). Victims of IPV are thought to use “I”, “you”, “we”, “affective”, “tentative” and “focus on the present” words in a quantitatively different manner. The Language Inquiry Word Count software was used to analyse 2276 reader letters. It was hypothesized that reader letters which were written during Covid-19 would contain, relative to before Covid-19, a greater IPV-related word-use pattern. Additionally, a gender IPV-related word-use difference was tested. Results showed that reader letters which were written during Covid-19 had a relatively greater “focus on the present”, contained relatively more “tentative” words and the word “I” than letters which were written before Covid-19, which reflected the heightened IPV prevalence during Covid-19. No significant differences existed in the use of “affective” words and the pronouns “we” and “you” across time. Based on these word categories, reader letters, therefore, did not reflect the heightened IPV prevalence. Female authors compared to male authors made relatively more use of words indicating a “focus on the present” and the word “I”, reflecting the circumstance that women are more often subjected to IPV than men. Taken together, the present study has demonstrated that natural language use concerned with impersonal topics changed in times of Covid-19 when IPV prevalence reached an unprecedented high.

Introduction

Corona Virus Disease of 2019

Since the first outbreak of the corona virus disease of 2019 (Covid-19), there have been 606.459.140 confirmed cases of infection worldwide (WHO, 2022). The pandemic had a global impact and forced countries worldwide to take protective measures in effect. Social distancing, in form of curfews and lockdowns, was introduced to limit the spread of Covid-19. However, the limitation of social interaction came at a high price. Research has shown how detrimental the effects of social isolation can be on the mental health of children, adolescents, and adults. There was a heightened prevalence of mental health disorders, specifically, symptoms related to depression, anxiety, and mental distress increased (Amerio et al., 2020; Rajkumer, 2020; Chandola, Kumari, Booker, & Benzeval, 2020). Social distancing impacted interpersonal relationships, which is also represented in the heightened prevalence of reported IPV cases. The number of intimate partner violence (IPV) incidents has been peaking worldwide since the outbreak of Covid-19 and subsequent lockdowns (Berniell & Facchini, 2021 & Heimann, Berthold, Clemens, Witt & Fegert, 2021). An increase in IPV prevalence is often linked to a situation of crisis (Anderberg, Rainer, Wadsworth & Wilson, 2016), and so too did Covid-19 influence the prevalence of IPV. The United Nation (UN) has given violence against women during Covid-19 the name “shadow pandemic”, due to its drastic increase (Emandi, Encarnacion, Seck & Tabaco, 2021). The report shows that 45% of women have experienced violence or know a woman who has (Emandi et al., 2021). In the UK, reported IPV cases have increased by 6% from 2019 to 2021 (Ekin, 2021), whereby violence executed by current partners has increased and ex-partner violence has declined (Ivandić, Kirchmaier & Linton, 2020).

Supplementing the classical IPV police and medical reports would yield a clearer picture of how many people are affected by IPV, without the bias of third-party reporting. One possibility is the analysis of IPV-specific language changes, which is why this study explored the association between word-use and IPV within the context of heightened IPV prevalence.

Intimate Partner Violence

An intimate relationship does not always result in a sense of safety and well-being. Women and men around the world are subjected to IPV on a daily basis. IPV is defined as "any behaviour within an intimate relationship which causes physical, psychological or sexual harm to those in the relationship" (Garcia-Moreno, Guedes & Knerr, 2012). It encompasses sexual and physical violence, controlling behaviour and psychological abuse (Garcia-Moreno, Guedes & Knerr, 2012). Due to the high number of reported cases worldwide and its detrimental health, social and economic consequences, IPV was identified as a global public health problem by the World Health Organization (2021). IPV is the most prevalent form of violence against women (Garcia-Moreno, Guedes & Knerr, 2012). Globally, 26% of women have, at least once in their lifetime, been physically or sexually assaulted by a former or current intimate partner (WHO, 2021). Not all IPV victims come forward to seek help, which is why it is believed that IPV prevalence is higher than the reported numbers (Kim & Ferraresso, 2021; Signal & Taylor, 2008; Ansara & Hindin, 2010), even more so among male victims (Arnocky & Vaillancourt, 2014).

The consequences of IPV are far reaching, posing health and social risks for individuals. Injuries through physical aggression are a direct consequence of IPV and are more common among female than male victims (Cho & Wolke, 2010). Overall, victims suffer from poorer general health and require more medical treatment (Campbell, 2002; Plichta, 2004). IPV majorly affects the psychological health of victims and family members (Castro et al., 2017). Besides the increased likelihood of developing a depressive and/or anxiety disorder (Chandan et al., 2020; Amahdabadi et al., 2020) there is also an increased risk to develop suicidal thoughts and/or to attempt suicide (Devris et al., 2011; Ellsberg et al., 2008). Further, PTSD is a common consequence and victims have a heightened risk to suffer from substance abuse (Wyshak, 2010).

Across different ages, status, ethnicities, or levels of education, anyone can be subjected to IPV. Factors such as having a history of violence victimization (Gil-Gonzáles, Vives-Cases, Ruiz, Carrasco-Portino & Àlvarez-Dardet, 2008; James, Brody & Hamilton 2013), attachment style (Velotti, Beomonte Zobel, Rogier & Tambelli (2018), socioeconomic status (James et al., 2013; Fulu, Jewkes, Roselli, & Garcia-Moreno, 2013; Mogford, 2011) and gender identity (Peitzmeier et al., 2020) may put individuals at risk to become victims or perpetrators of IPV.

To be able to respond to the growing number of IPV cases it is necessary to understand its causes, consequences, and prevalence. The present study contributes the understanding of IPV by investigating a population that has not specifically been screened for IPV, which means inferences about IPV prevalence independent of official or medical IPV case reports can be made.

Word-use

The unique use of language reveals more than merely the meaning and content of a narrative. Words and their linguistic arrangement can reflect, along with someone's social status, age, and sex, someone's emotional, cognitive, and mental state (Pennebaker, Mehl & Niederhoffer, 2003). Language-use and word-use is steady across contexts and stable over time (Pennebaker, Mehl & Niederhoffer, 2003; Tausczic & Pennebaker, 2010). Based on certain linguistic markers in self-narratives for example, personality traits can be identified (Hirsh & Peterson, 2009). Similarly, Sylvester and Purver (2015) were able to identify differences in online language-use between democrats and republicans, reflecting psychological differences between the group members. Within the field of clinical psychology, the study of language-use is not a new concept. For Freud (1984) a slip of the tongue represented an "uninhibited stream of association" (p. 51), which he believed revealed unconscious processes. Nowadays, language analysis is of even more interest, as much everyday communication and interaction take place digitally, producing an extraordinary amount of accessible data, allowing scientific research to uncover mechanisms, and meaning in a way that until now, has not been possible.

Within the field of clinical psychology, word-use has been extendedly studied in relation to psychological disorders. It has been shown that people who suffer from depression or an anxiety disorder use relatively more self-referencing words, reflecting greater self-focused attention compared to a healthy population (Brockmeyer et al., 2015; Rude, Gortner & Pennebaker, 2004). How much or how little certain words are used can be descriptive of situations people are in and their mental health. For example, emotionally driven texts differ when written by a person who recently went through a breakup, when compared to a person who did not (Boals & Klein, 2005).

In connection to violence, word-use studies have shown how populations who experience or have experienced abuse, reaching from sexual childhood abuse to IPV, differ in

their linguistics (Tani, Peterson & Smorti, 2016; Roberston & Murachver, 2006; Wan et al., 2019). Studies have shown differences in IPV victims' use of pronouns, emotional words, tenses, and overall speaking styles (Tani et al., 2016; Wan et al., 2019; Lorenz & Meston, 2012). That is, people with and without a history of IPV, relative to each other, differ in their quantitative use of certain words. Concretely, Robertson and Murachver (2006) show a decrease in tentative language-use in victims of IPV. Tani, Peterson and Smorti (2016) describe an increased use of the pronouns "I" and "you" and a decline of the word „we". Another study shows similar results, whereby the pronoun "I" is used relatively more in texts about "life after abuse" than in texts about "is it abuse?" (Sánchez-Moya, 2018). An increased use of "emotional" word categories is also found according to Zaman et al. (2021). Moreover, female survivors tend to write in present tense (Tani et al., 2016). Studies often differ in the methods and text sources they use to investigate word-use. Sánchez-Moya (2018) investigated entries in online forums concerned with the overall topic of abuse, Tani et al., (2016) asked their participants to write an autobiographic narrative and Peterson and Smorti (2016) analysed word-use during a short interaction. Therefore, findings might be dependent on the text sources used in the analyses. Multiple studies have underlined that violence and other distressing circumstances change the way people speak and write. Further research is needed to uncover the nature of the association in consideration of different contexts. The current study does so by investigating whether there is an association between the growing number of reported IPV cases in the year 2020 and language-use in reader letters which were sent to The Guardian.

Purpose of the Present Study

Lockdowns, curfews, and the increase in unemployment due to Covid-19 forced people to stay at home, provoking a drastic raise in IPV cases (Anderberg et al., 2016; Berniell & Facchini, 2021). IPV causes victims to suffer from serious health concerns. Language is often reflective of someone's well-being and mental status and an association was found between certain patterns of quantitative word-use and the experience of IPV.

The present study explored whether the high prevalence of IPV cases during 2020 was manifested in language-use. Concretely, word-use in reader letters written before the outbreak of Covid-19 was compared with word-use in letters that were written during the outbreak. The paper's main objective was to determine whether letters from 2020 compared to 2019 differed

in their word-use, possibly reflecting the increase of IPV cases in the year 2020 due to Covid-19 and subsequent protective measures. The relative difference in word-use between a population with and without the experience of IPV is mirrored in the use of “pronouns”, “emotional”, “present tense” and “tentative” words (Tani et al., 2016; Wan et al., 2019; Lorenz & Meston, 2012).

Previous findings give reason to hypothesize that from March to May 2020, relative to January to May 2019 and January to March 2020, there was an increased use of the pronouns “I“ and “you“, “focus on the present”, and “negative emotional” words. Additionally, a decreased use of the pronoun “we“, and “tentative” words, and a change in the overall use of “affect” and ”positive emotional” words was expected. It was further expected that letters written by women and men differ in their quantitative use of “emotional”, “tentative”, “present focus” words and pronouns. Women’s letters would contain more word-use patterns that are indicative of IPV than letters that were written by men independent of the influence of Covid-19 because one in three women worldwide has been exposed to IPV (WHO, 2016) compared to one in six men worldwide (Umeed, 2013). In line with the main hypothesis, it was expected that letters written by men in 2020 would show an increase in the use of word categories associable with IPV when compared to letters written by men in 2019.

The first objective of the present study was to investigate a population that has not been specifically screened for abuse. The majority of previous research worked with a limited number of participants and investigated written and spoken linguistics in relation to abuse. By examining reader letters in which people write about a wide range of topics, reaching from political opinions to lifestyle tips, word-use associable with abuse was investigated under new premises, which furthered our understanding on what level traumatic life experiences alter and influence language-use. There is a high number of IPV cases which do not get reported (Kim & Ferraresso, 2021; Signal & Taylor, 2008; Ansara & Hindin, 2010). To identify IPV experiences from text analysis could be used in the future to uncover cases of IPV without having to rely on the reports of victims or witnesses. For this reason, the present study explored to what extent language reflects IPV prevalence during Covid-19. A gender-specific difference in quantitative word-use would be indicative of the ratio of the male and female victim distribution, which would be independent of the circumstance that men report IPV less often than female victims (Arnocky & Vaillancourt, 2014).

The present study investigated to what extent language can be expressive of IPV by examining the possibility of an association between IPV specific language-use and the heightened number of IPV cases during Covid-19. To that end, letters' linguistics were analysed to examine whether word-use in letters that have been written before the outbreak of Covid-19 differs from word-use in letters that have been written during Covid-19 and the first lockdown in Great Britain. Instead of studying how language is affected by IPV experiences, the current study answered the question of how the association between IPV and word-use was reflected in language-use during the times of Covid-19 when IPV was more prevalent than ever. Thereby, word-use associable with IPV was investigated under new premises, which furthered our understanding of how and on what level traumatic life experiences influence linguistics.

Methods

Research Design, Participants and Procedure

The design of the study was a quasi-experimental design with interrupted time series. Existing data, in the form of reader letters which were published by The Guardian, was used. Reader letters were included in the analysis if they were written between january 2019 and June 2020 and the authors' place of residence was the UK, and if the author's first names were published. The first names were used to deduct the author's gender. Participants, therefore, were the authors of the reader letters, who lived in the UK and had gebder-specific first names.

The reader letters were collected from the website of The Guardian online international edition. By the means of the Language Inquiry and Word Count (LIWC), IPV-related word-use of each letter was analysed. To that end, it was necessary to save each letter as a separate document. The LIWC dataset was then transformed and edited in SPSS. Specific exclusion criteria were implemented. Letters with authors whose place of residency was not in the UK or was not indicated were excluded from the analysis. If first names were not provided or were ambiguous regarding their gender affiliation, letters were excluded. Some letters were written by more than one author, these letters had to be excluded as well because linguistic word-use could no longer be tied to one author. Lastly, letters with less than 50 words were excluded to guarantee validity. Four sample groups were created based on when

they were written. They were called “No Pandemic”, “Control No Pandemic_2019”, “Pandemic No Lockdown”, and “Lockdown”.

Sample Groups

No-Pandemic. This sample consisted of letters that were written from 01.01.2019 to 30.04.2019 and from 01.02.2020 to 10.03.2020. Importantly, Covid-19 was first identified in 2019, therefore during January and February 2020 Covid-19 already existed. Strictly speaking, this sample encompassed letters that were written in the first months after the outbreak of Covid-19, but at that time Covid-19 was not considered a pandemic nor was it recognized as a serious health concern and protective measures were not yet implemented.

Control No Pandemic_2019. The second sample consisted of letters that were written from 24.03.2019 to 30.04.2019, which was one year before the first lockdown in 2020. To my knowledge, there is no scientific literature to fully back up the assumption that the first months of Covid-19 did not influence IPV incidents. Thus, Control No Pandemic_2019 controlled for the possibility that the first months of the Covid-19 outbreak could have influenced IPV-related word-use. In addition, in March and April 2020, the first lockdown was implemented and enforced. Using letters that were written in the same months only a year earlier helped to control for potential threats to internal validity as, for example, seasonal conditions were similar.

Pandemic No Lockdown. The third sample consisted of letters that were written when Covid-19 was declared to be a serious health concern, but no protective measures had yet been put into place in the UK. This sample was made up by letters that were written from 12.03.2020 to 22.03.2020. On March 11, 2020, the WHO declared Covid-19 to be a pandemic (Cucinotta & Vanelly, 2020). After that, in the UK and globally, media attention regarding Covid-19 rose and protective measures started to be implemented, including for example non-essential travelling stop (Institute for Government analysis, n.d). This sample, therefore, encompassed reader letters that were written during a time of concern, but when no lockdown was in force yet.

Lockdown. The sample consisted of letters that were written during the first official lockdown in the UK, which was from 23.03.2020 to 30.04.2020. By the time of the first lockdown social interaction was greatly limited and life mostly took place at home. Creating this sample made it possible to explore how the lockdown affected IPV-related word-use in reader letters.

Measurement

Language Inquiry and Word Count

To analyse the reader letters in a psychologically meaningful manner, the LIWC software, originally developed by Pennebaker in 1996, was used (Pennebaker & Francis, 1996). Since then, LIWC has been continually revised and improved (Pennebaker, Francis & Booth 2001; Pennebaker, Boyd, Jordan & Blackburn, 2015). The software enables the automated detection of meaning from written text regarding emotional, social, attentional, and cognitive focus (Pennebaker, Mehl & Niederhoffer, 2003; Tausczic & Pennebaker, 2010). The LIWC2015 encompasses a dictionary consisting of 6400 words and word stems which define word categories. In total, the software differentiates between 80 word categories, which were initially defined by 70 independent judges (Pennebaker, Mehl & Niederhoffer, 2003). One word can belong to different word categories. For example, the word "laughed" belongs to the word category "positive emotion", to the category of "affect", and to the category "focus past tense". Hence, a text is analysed by matching each word with its corresponding categories. The LIWC2015 calculates the percentage of how much a word category was used within the text. Overall, the psychometric properties of the LIWC have not been extensively assessed, but Pennebaker, Francis and Booth (2001) ratified construct and content validity. Additionally, according to Bantum and Owen (2009), LIWC dependably identifies emotional expressions in texts. However, reliability coefficients are generally lower in natural language-use (Pennebaker et al. 2015). Thus, diagnostic questionnaires would score higher in reliability measures because they are not bound to natural language-use. Nevertheless, the LIWC dictionary is reliable (Fiviush, Edwards & Mennuti-Washburn, 2003; Pennebaker et al., 2001; Pennebaker et al. 2015). This study focused on the analysis of word categories that are linked to IPV, namely the pronouns "I", "you", "we", and "affect" words, including "negative" and "positive emotional" words, "tentative" and "focus on the present" words. This means the LIWC calculated the percentages of how much the six word categories were used relative to the entire text.

Analyses

Statistical Analysis

In total four data analyses were conducted with SPSS 26 to test the hypotheses. Assumption testing, via the test of homogeneity of variance, skewness and kurtosis, revealed that the data

did not meet the analysis of variance (ANOVA) assumptions. Specifically, the data was not normally distributed, neither were equal group variances given and sample sizes were unequal. Therefore, the Kruskal-Wallis test, which is the nonparametric equivalent to the ANOVA, was performed for all four analyses. The Kruskal-Wallis assumptions of having an ordinal or continuous response variable and sample independence were met. The group medians of the ranked data were compared. An alpha level of 0.05 was applied. In the first analysis, it was checked if IPV-related word-use was more common in the lockdown sample and pandemic no lockdown sample compared to the pre-Covid-19 samples. The second and third Kruskal-Wallis tests were performed to investigate if IP-related word-use increased during the time of Covid-19 and the first lockdown, though this time, letters written by women and men were tested separately from each other. Additional analyses investigated letters of the No Pandemic, Pandemic No Lockdown and Lockdown Samples separately from each other. It was tested if medians of IPV-related word-use significantly differed between letters written by women and men. For all analyses effect sizes in form of the Pearson correlation coefficient were calculated. Bonferroni corrections were applied because multiple comparisons were performed.

Results

From the original dataset of 3782 letters, 557 letters were excluded because the authors' place of residency was either not in the UK or not provided. Another 89 letters were excluded because either first names were ambiguous in relation to gender identification or letters were written by more than one author. Additional 860 letters had to be excluded because letters counted less than 50 words. The remaining dataset encompassed 2276 letters. Table 1 depicts the sizes of the four sample groups and their totals.

Table 1

Sample Sizes

Time Conditions	Gender		
	Female	Male	Total amount of letters
No Pandemic	528	999	1527
Pandemic No Lockdown	36	62	98

Lockdown	78	146	224
Control No Pandemic_2019	130	297	427
Total amount of Letters	722	1504	2276

Note. This table displays the number of letters, and thereby participants, that make up the sample groups and their total, as well as the number of letters written by women and men and their total.

IPV-related Word-Use across Time

The means and standard deviations of the word categories in relation to the four time periods are displayed in Appendix A1. Figures 1 to 4 illustrate the median use of the IPV-related word categories.

The analysis revealed no significant differences in the use of the pronouns "we" and "you", nor in the use of "emotional" words across time. A significant difference was found for the use of the word "I" (χ^2 (3) = 20.292, p = 0.000), the use of "tentative" words (χ^2 (3) = 9.415, p = 0.024) and in the category "focus on the present" (χ^2 (3) = 20.901, p = 0.000).

Table 2 depicts the test statistics of IPV-related word-use across time, which shows that no group differences in word-use between the Control No Pandemic_2019 and No Pandemic samples existed. Similarly, letters of the Pandemic No Lockdown sample did not differ in their word-use from the letters of the Lockdown sample (Table 2).

Use of "I". The median for the use of "I" was significantly higher in the Lockdown sample than in the No Pandemic sample (see Table 2 and Figures 1 & 4). The result survived the Bonferroni correction. Letters of the Pandemic No Lockdown sample contained relatively more the word "I" than letters of the Control No Pandemic_2019 sample (see Table 2 and Figures 2 & 3). The difference remained significant after the Bonferroni correction.

Tentative Language: The median use of tentative language was relatively higher in the Pandemic No Lockdown sample compared to the No Pandemic and Control No Pandemic_2019 samples (see Table 2 and Figures 1, 2 & 3). Results survived the Bonferroni correction. By the time of the first lockdown, the median rank of tentative language decreased and the group differences between the Lockdown and Pre-Covid samples were no longer significant.

Focus on the Present. The median rank of "focusing on the present" was relatively higher in both the Pandemic No Lockdown and Lockdown samples than in the No Pandemic

and Control No Pandemic_2019 samples (see Table 2 and Figures 1, 2, 3 & 4). Results survived the Bonferroni correction.

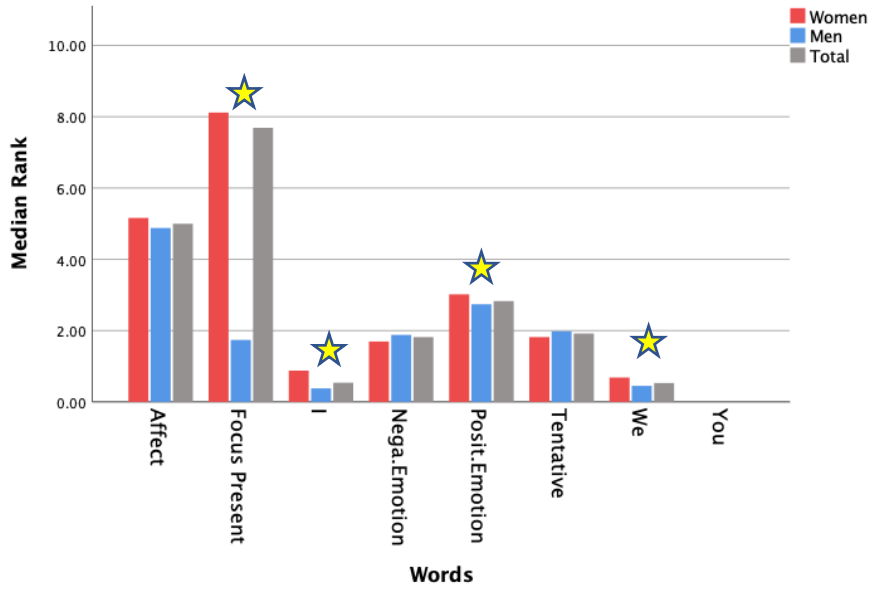
Table 2.
Pairwise comparison test statistics of time for IPV-related word categories.

Pairwise Comparison	Dimensions								
	I			Tentative			Focus Present		
	χ^2	p	r	χ^2	p	r	χ^2	p	r
Control No Pandemic_2019 vs. No Pandemic	62.311	0.069	n.a.	-2.429	0.946	n.a.	8.214	0.819	n.a.
Control No Pandemic_2019 vs. Pandemic No Lockdown	170.776	0.015	0.10	190.603	0.010	0.064	202.654	0.006	0.15
Control No Pandemic_2019 vs. Lockdown	216.020	0.000	0.16	61.687	0.255	n.a.	179.464	0.001	0.12
No Pandemic vs. Pandemic No Lockdown	-108.465	0.096	n.a.	-193.031	0.005	0.070	-194.440	0.005	0.07
No Pandemic vs. Lockdown	-153.708	0.001	0.08	-64.115	0.172	n.a.	-171.250	0.000	0.08
Pandemic vs. Lockdown	-45.243	0.551	n.a.	128.916	0.105	n.a.	23.190	0.771	n.a.

Note: The Kruskal-Wallis test results for the pairwise comparisons are presented along with the corresponding effect sizes Pearsons' r. If pairwise comparison was not significant, effect size was not calculated. Here annotated as not applicable "n.a." in the effect size column.

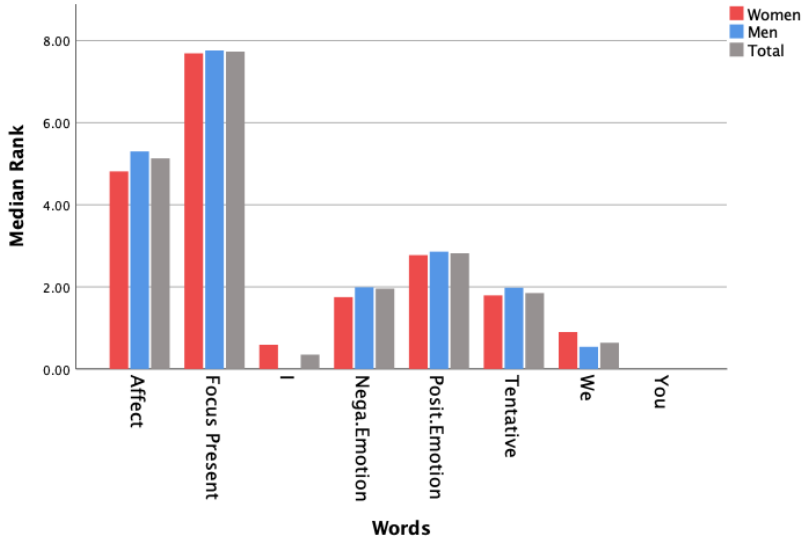
Figure 1.

Median Ranks of IPV- related Word-Use of the No Pandemic Sample.



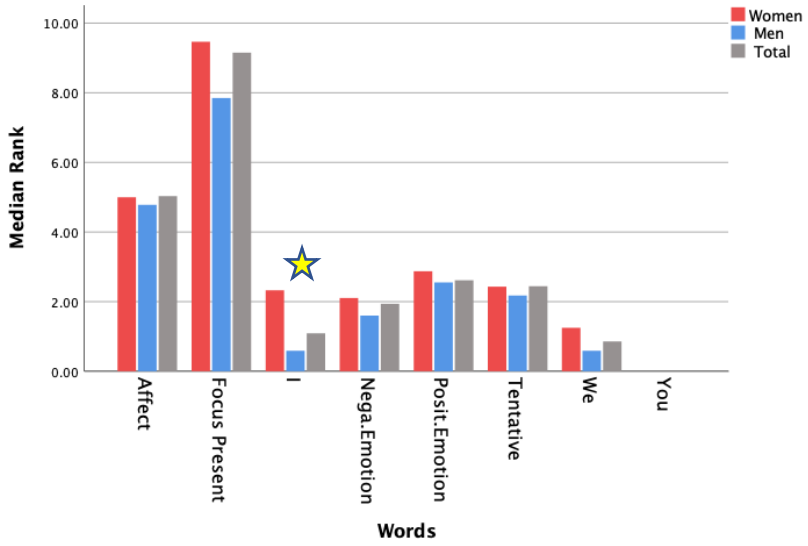
Note. The bar graph illustrates the median ranks of IPV related word use in the sample No Pandemic. Women's median ranks are shown in the red bars, men's median ranks in the blue bars and their total in the grey bars. The star symbolises a significant gender group difference in word-use.

Figure 2. Median Ranks of IPV-related word-use of the Control No Pandemic_2019 Sample



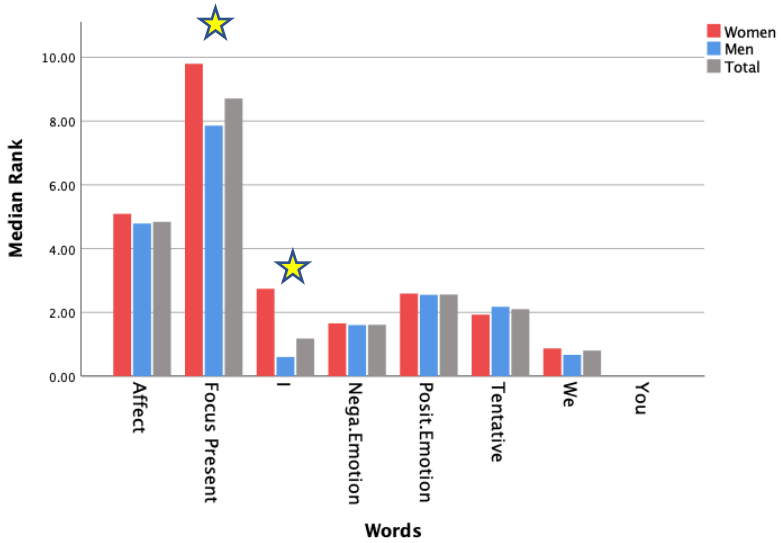
Note. The bar graph illustrates the median ranks of IPV related word use in the sample Control No Pandemic_2019. Women's median ranks are shown in the red bars, men's median ranks in the blue bars and their total in grey bars.

Figure 3. Median Ranks of IPV-related word-use of the Pandemic No Lockdown Sample



Note. The bar graph illustrates the median ranks of IPV related word use in the Pandemic No Lockdown sample. Women's median ranks are shown in the red bars, men's' median ranks in the blue bars and their total in the grey bars. The star symbolises a significant gender group difference in word use.

Figure 4. Median Ranks of IPV-related word-use of the Lockdown Sample



Note. The bar graph illustrates the median ranks of IPV related word use in the Lockdown Sample. Women's' median ranks are shown in the red bars, men's' median ranks in the blue bars and their total in the grey bars. The star symbolises a significant gender group difference in word use.

IPV-related Word-Use across Time and Gender Differences

The Kruskal-Wallis test was used to investigate whether women and men used relatively more IPV-related words during times of Covid-19. In addition, it was tested whether letters written by men differed in their IPV-related word-use compared to women. Figures 1 to 4 depict the median differences in IPV-related word-use between men and women in each sample group. Table 3 depicts the test statistics of word-use across time for men and women separately and Table 4 displays the test statistics of gender differences in the four sample groups.

Use of "I". Letters written by men showed no significant group difference in their use of "I" across time. For letters written by women, the use of "I" changed significantly across time (χ^2 (3) = 18.817 p = 0.000). In the female Lockdown sample, the median use of the word "I" was relatively higher than in the female No Pandemic sample (see Table 3 and Figures 1 & 4). Results survived the Bonferroni correction.

In the No Pandemic sample, the median use of the word "I" was relatively higher in letters written by women than in letters that were written by men (see Table 4 and Figure 1). Results survived the Bonferroni correction. In the Pandemic No Lockdown Sample, women had a relatively higher median of the use of I than men (see Table 4 and Figure 3). The results survived Bonferroni correction. In the Lockdown sample, women used relatively more the word "I" than men (see Table 4 and Figure 4).

Use of "Focus on Present" Words. The "focus on the present" changed significantly across time in letters written by men (χ^2 (3) = 8.516, p = 0.036) and in letters written by women (χ^2 (3) = 19.889, p = 0.000). Letters written by men of the Pandemic No Lockdown sample contained relatively more "focus on the present" words than letters written by men of the No Pandemic Sample (see Table 3 and Figures 1 & 3). Letters written by men of the Lockdown sample had also a higher median rank (see Table 3 and Figure 1 & 4). Results did not survive the Bonferroni correction. Women in the Lockdown sample had a higher median

rank in their "focus on the present" than women in the No Pandemic sample (see Table 3 and Figures 1 & 4). Results survived the Bonferroni correction.

In the No Pandemic Sample, women focused relatively more on the present than men (see Table 4 and Figure 1). Results survived Bonferroni correction. In the Lockdown sample, women had a significantly higher median in their "focus on the present" than men (see Table 4 and Figure 4). Results survived the Bonferroni correction.

Use of "Positive Emotional" Words. Across time, neither women nor men used significantly more or less affection related words. Women's median use of "positive emotional" words was relatively higher than men's in the No Pandemic sample (see Table 4 and Figure 1). Results survived the Bonferroni correction.

Use of "We". Neither women nor men used the word "we" significantly more or less across time. In the No Pandemic sample, the median use of "we" was relatively higher in women than in men (see Table 4 and Figure 1). Result survived the Bonferroni correction.

Use of "You, "Tentative", "Affect" and "Negative Emotional" Words. "You", "tentative", "affect" and "negative emotional" words were not used differently across time by men or women. There was also no significant group difference between women and men within each sample group.

Table 3.
Pairwise comparison test statistics of time for the IPV-related word I and word category Focus on the Present in letters that were written by Women and Men.

Pairwise Comparison	Women						Men		
	I			Focus Present			Focus Present		
	χ^2	p	r	χ^2	p	r	χ^2	p	r
No Pandemic vs. Pandmeic No Lockdown							-121.113	0.033	0.06
No Pandemic vs. Lockdown	-97.146	0.000	0.14	-91.179	0.001	0.13	-78.916	0.040	0.06

Note. Significant Kruskal-Wallis test results for the pairwise comparison of the female and male sample is presented along with the corresponding effect sizes Pearsons' r. The pairwise comparison between the Control No Pandemic_2019 and other samples is. not

presented, as results between No Pandemic and Control No Pandemic_2019 sample were, as expected, insignificant.

Table 4.

Test Statistics of Gender Differences across Time.

Samples		Pairwise Comparison		
		Women vs. Men		
		χ^2 (1)	p	r
No Pandemic	I	22.135	0.000	0.12
	We	13.986	0.000	0.07
	Posti.Emotion	6.267	0.012	0.06
	Focus Present	18.909	0.000	0.11
Pandemic No Lockdown	I	6.774	0.009	0.26
Lockdown	I	17.165	0.000	0.27
	Focus present	10.573	0.001	0.21

Note. Depicted are the significant Kruskal-Wallis test results for the pairwise comparison between men and women in IPV related word use of each sample group. The corresponding effect size Pearsons' r is displayed.

Discussion

Summary of Findings

The present study investigated to what degree word-use in reader letters written in times of Covid-19 reflected the heightened prevalence of intimate partner violence. It was ultimately unknown whether the authors of the reader letters were indeed affected by IPV, but in contrast to previous research, the current study intended to test if IPV linguistic markers would be found in a general population when IPV prevalence was high. This means it was assumed that some of the authors of the reader letters were subjected to IPV.

Firstly, it was expected that IPV-related word-use would be more prevalent in letters written during times of Covid-19 when reported cases of IPV reached an unprecedented high.

Out of the eight investigated word categories associated with IPV, a difference in the use of "I", in the "focus on the present" and in "tentative" language-use was found.

Secondly, for women, a group difference was found in the word categories "I" and "focus on the present", whereby women made relatively more use of these two word categories in times of the first lockdown than the women before Covid-19. Male authors focused relatively more on the present during Covid-19 than male authors before Covid-19. The difference was no longer significant after correcting for multiple tests.

Thirdly, before and during Covid-19 To the contrary of what was expected, letters written by women of the No Pandemic sample contained relatively more the word "we" and "positive emotional" words than letters written by men. The other IPV-related word categories were not differently used by men and women at any given period.

Interpretation of Findings

Use of I

Differences Across Time. The pronoun "I" is found to be used more often when having experienced IPV (Tani et al., 2016; Wan et al., 2019; Lorenz & Meston, 2012) and because reader letters which were written during Covid-19 contained relatively more the word "I", the heightened prevalence of IPV was reflected in the language-use of the reader letters. The word "I" does not only refer to the self in a literal sense, but its use expresses inward directed attention (Tausczik & Pennebaker, 2010). Being subjected to IPV often entails the experience of physical and psychological pain, which itself is associated with increased use of the word I (Rude, Gortner & Pennebaker, 2004). It can therefore be said that in comparison to pre-Covid-19 times the attentional focus shifted increasingly to the self in times of Covid-19, which possibly stems from increased distress.

IPV and depression are related (White & Satyen, 2015) and as the work of Buchner, Hamm, Medenica and Moldijk (2021) has shown, the language of IPV victims contains typical depressive linguistic markers, the word "I" being one of them. A self-focused attentional bias is associated with depression and depressed individuals make more use of the word "I" compared to non-depressed individuals (Rude, Gortner & Pennebaker 2004; Brockmeyer et al., 2015). Like the heightened IPV prevalence during Covid-19, reported cases of depression also increased in the UK (Williams et al., 2021). The increased use of "I" could therefore also be reflective of an association between Covid-19, depression and IPV.

Gender Differences. This study investigated IPV specific word-use among a population that has not specifically been screened for IPV experiences. Being able to identify victims of IPV based on linguistic markers is especially helpful regarding male victims, as they are thought to report IPV less often than women (Kim & Ferraresso, 2021; Arnocky & Vaillancourt, 2014). During the first year of Covid-19 men were subjected to IPV twice as much than in the year before (Ekin, 2021I). However, men's use of the word "I" in their letters did not increase during Covid-19. Compared to male victims, twice as many female victims were subjected to IPV in 2020 in the UK (Ekin, 2021), which could explain why letters written by women letters contained relatively more the word "I" compared to letters written by men. The finding that women during Covid-19 used the word "I" relatively more often than women before Covid-19 is therefore reflective of the IPV increase (Ekin, 2021).

Present Focus

Differences Across Time. Reader letters that were written during Covid-19 had a relatively greater "focus on the present" than letters that were written in 2019. These results were expected as IPV victims make greater use of the present tense (Tani et al., 2016). Results, therefore, reflected the heightened IPV prevalence in times of Covid-19. When writing about an undisclosed event, individuals focus relatively more on the present than when writing about a disclosed event (Pasupathi, 2007). The current study assumed that IPV was ongoing. In other words, the experience of IPV was not disclosed. When trauma is in the past, that is when it is disclosed, the temporal focus lies relatively more on the past than on the present (Homan & Silver, 1998; Pasupathi, 2007). Taken together, this could explain why the focus on the present was more frequent in times of Covid-19 when IPV prevalence was high.

It is noteworthy that though the findings of the current study align with the findings of Tani et al. (2016), the LIWC word category "focus on the present" used here varied from the word category "verbal present tense" Tani et al. (2016) used. Tani et al. (2016) analysed their data with an older version of the LIWC. The LIWC version used for this study is the latest and does no longer include the category "verbal present tense" because of its consistently low base rate (Pennebaker et al., 2015). As an alternative the "verbal present tense" category was included. Whereas the "verbal present tense" category screens for words such as "read, walk, drink", that is, verbs written in the present tense, the "focus on the present category"

additionally screens for words such as “today” or “now”. Because other research, which investigated language-use in IPV victims, has defined the “focus on the present” category as a present tense marker (Wan et al. 2019), it was justified to use the “focus on the present” category in this study as an alternative to the “verbal present tense” category. But strictly speaking a different word category to the one used by Tani et al. (2016) was used, which should be taken into consideration as IPV specific verbal present tense use might not be transferable to the focus on the present, especially because Wan et al. (2019) report IPV victims focus less on the present. For the obtained results this meant that the apparent association between focusing increasingly on the present and heightened IPV should be interpreted with caution and it should be further studied in the future.

It is possible that Covid-19, in relation to other variables, was responsible for the shift in the authors’ temporal focus. Several studies have investigated Covid-19-related word-use, showing for example an increased use of the word “home” (Su et al., 2020). If undisclosed events are related to an increased focus on the present (Pasupathi, 2007) and if Covid-19 is categorised as an undisclosed event, it is possible that Covid-19 influenced the temporal focus of authors in their reader letters. This needs to be further studied in the future.

Gender Differences. Women's focus on the present was relatively greater than men’s before and during Covid-19, which might be reflective of the fact that women are more often the victims of IPV than men (Ekin, 2021). To explain these results, the same line of reasoning as described above holds. Female authors were assumed to live in a situation of IPV when writing the letters. Therefore, the event was undisclosed, which could explain the heightened focus on the present. These results are in line with the results of a study showing that women focus relatively more on the present than men in times of Covid-19 (Van der Vegt & Kleinberg, 2020). However, because of the discrepancy between the “verbal present tense” category used by Tani et al. (2016) and the current study’s “focus on present” category, it is necessary to read the interpretation of the results with caution. In the future, the gender specific association between IPV and temporal focus should be further investigated.

Tentative Language

Differences Across Time. Contrary to what was expected, tentative language was used relatively more at the beginning of Covid-19 when no lockdown was enforced than before Covid-19. According to Robertson and Murachver (2006), tentative word-use reflects

polite and non-facilitative language and in their study IPV victims used less tentative language. Based on their research, the results of the current study, therefore, implied that reader letters did not reflect the increase in IPV. Robertson and Murachver's (2006) detected a decrease in tentative language in IPV victims by analysing one-on-one conversations. Thus, a decrease in tentative language in IPV victims may be specific to one-on-one conversations, which could explain why in this study's tentative language did not decrease even though IPV prevalence increased.

A possible reason why tentative language increased could be Covid-19, as tentative language, which includes words such as "maybe" and "perhaps", could be classified as an expression of uncertainty. Research which investigated the language-use of liars classified tentative language as an indicator of uncertainty (DePaulo et al., 2003; Hauch et al., 2015). Covid-19, its novelty and its apparent threat, resulted in a sense of uncertainty (Cristea et al., 2022), which could explain why reader letters during the first weeks of Covid-19 contained relatively more tentative words. By the time of the first lockdown, tentative language-use decreased again. It is possible that with the enforced lockdown and other clarifying policies the degree of uncertainty declined, which could explain the decrease in tentative language. This possibility needs to be extensively studied in the future.

Gender Differences. Results did not reflect the circumstance that women are more often subjected to IPV than men. Tentative language might only be used less by IPV victims in one-on-one conversations (Robertson & Murachver, 2006) and not in written essays, which might explain why tentative language did not decrease in reader letters.

The here obtained results contradict the finding that women in general make more use of tentative language than men (Lakoff & Bucholz, 2004). Other research has shown that gender-typical tentative language-use is dependent on the context of the topic and group identity and as long as gender-neutral topics are discussed no gender differences were found, which could explain the here obtained results (Palomares, 2009; Klinke, 2018).

Use of We, You and Affect Words

Differences Across Time. "Affect", "positive emotional"," negative emotional" words and the words "we" and "you" were not used differently across time. This implied that even though IPV has increased tremendously in 2019, reader letters did not reflect the increase based these word categories.

It is important to keep in mind is that this study was of an explorative nature. Word categories that have previously been shown to be related to IPV were used to study to what degree reader letters would reflect heightened IPV prevalence. Research showing differences in the word-use of "we" and "you" studied autobiographical texts (Tani et al., 2016). The reduction of "positive emotional" word-use was found in essays in which participants described their day (Lorenz & Meston, 2012) and differences in the use of "affect" and "negative emotional" words was found in Google search histories (Zaman et al., 2021). The current study analysed reader letters, which were neither autobiographical nor about IPV experiences. Hence, a very different type of data was used. Reader letters might not reflect the expected changes because context and content might be of more relevance regarding IPV-related language differences than previously assumed. This is an idea that is in line with research showing IPV-specific word-use to be apparent in some texts and others not (Lorenz & Meston 2012; Roberston & Murachver, 2012).

Gender Differences. Men and women, did not use "affect", "positive emotional"," negative emotional" words and the words "we" and "you" differently across time. Contrary to what was expected, there were no gender differences in the word-use of "affect", "negative emotions" and "you". Women made relatively more use of "positive emotional" words and the pronoun "we". Taken together, reader letters in regard to these categories did not reflect the circumstance that women are more often subjected to IPV than men (Ekin,2021). The context and type of text may influence IPV specific word-use regarding "emotional" words and the pronouns "we" and "you". Thus, maybe because the here investigated reader letters were rather impersonal in comparison to autobiographical narratives, for example, these word categories were not used differently across time.

Before Covid-19, women used relatively more "positive emotional" words and the pronoun "we" in their reader letters than men, which is in line with the finding that in general women use pronouns and "positive emotional" words more often than men (Newmann, Groom, Handelmann & Pennebaker, 2008). It is possible that because Covid-19 affected language-use (Su et al., 2020) women no longer used "positive emotional" words and the word "we" quantitatively different than men.

Limitations and Strengths

Information about the authors the participants, was limited. The ages and professions of the authors were unknown. Thus, possible co-variables such as level of education or age could not be investigated, which is a limitation because language-use is affected by these factors (Lee, 2006; Steven, 1992). There is no guarantee that the assigned gender, which was derived from the authors' first names, was correct. Moreover, other forms of gender identity, such as agender, were not considered. The binary representation of gender has simplified and thereby limited the results in regard to gender differences in language.

The study was intended to investigate the association between IPV and language-use in the context of Covid-19. The factor producing the change in language-use is ultimately unknown. The expectation that language-use would change assumed that authors of the reader letters were indeed affected by IPV. Anyone can be subjected to IPV and status does not protect against it (Mogford, 2011). However, there are multiple protective factors, such as a secondary education, which decrease the risk of being subjected to IPV (Abramsky, 2011). There is no guarantee that the chosen sample was indeed subjected to IPV, which limits the generalizability of the obtained results. Additionally, the sample consisted only of people who not only read The Guardian, but who actively interacted by writing a letter. It is questionable if these people are representative of the general population. Similarly, since participants lived in the UK, findings were only generalizable to citizens of the UK.

The effect sizes of the obtained results were small and though the total sample size was satisfactory, individual sample groups were rather small, which resulted in a reduction of power (Howell, 2018). In other words, the probability of finding an association between IPV and word-use in the context of Covid-19 was overall lower than it would have been if an ANOVA could have been applied. The LIWC's reliability and validity might have limited the current results to some degree. First of all, because natural language-use reliability coefficients are usually lower than for example psychological questionnaires (Pennebaker et al., 2015). Second of all, the LIWC does not consider context but counts word percentages, which means in regard to, for example, the category "affect", it is possible that the LIWC failed to correctly categorize certain words.

A strength of the current study was the overall large sample size. Most research so far has investigated IPV-related word-use with smaller sample sizes. To study the word-use of a population that has not previously been screened for having experienced IPV made it possible

put the association to the test. It was thereby shown which words were used differently during a time when IPV prevalence reached an unprecedented high. In addition, the investigation of reader letters which were concerned with opinion-giving rather than personal narratives, made it possible to study IPV-related word-use in a new context. By making use of the LIWC it was possible to analyze a large amount of text in a fairly uncomplicated manner.

Implications & Conclusion

The current study's focus lay on language-use in times of Covid-19 while considering the major increase in IPV. In contrast to previous literature studying the direct association between language-use and IPV experiences, the current study put the association to the test by investigating it under new premises. Firstly, this was done by investigating a population that has not specifically been screened for IPV and secondly, by studying natural language in the form of reader letters. It was unknown whether authors were subjected to IPV and the increase in IPV was only one of many factors that changed in times of Covid-19.

Exploring the association between Covid-19, IPV and language-use is multi-layered and complex. Future research should further investigate IPV-related word-use by targeting different types of texts and speech. Specifically, IPV specific word-use in neutral texts has not been extensively studied so far. As only letters written in the first two months of Covid-19 have been investigated, it could be of interest to expand the time period for example to a whole year. Especially because IPV prevalence reports encompass more than only the first two months of Covid-19. Based on this study it is impossible to say why certain linguistic markers changed over time and others not. So far, most research has been concerned with IPV specific word-use in female IPV victims. As was demonstrated, gender differences in IPV-related language existed and it would be crucial to dissemble the differences further to make the analysis more concrete also in relation to general gender differences in language-use as proposed by Lakoff and Bucholz (2004). The function of tentative language should further be investigated in relation to Covid-19. Studying whether clear policy making can reduce uncertainty and thereby tentative word-use, could conceivably be used in the future to improve crisis management. This study shows that authors focused on the present relatively more in times of Covid-19. The association between temporal focus and Covid-19 should be investigated further since cognitive temporal focus can reveal behavioural tendencies linked to the spread of Covid-19 (Barnes, 2019). Language is more than words strung together.

Context gives meaning, which makes it a necessity to be able to interpret and analyse text within its context in the future.

The current study has shown that in times of Covid-19 authors of reader letters differed in their word-use compared to pre-Covid-19 times. Regarding the increased use of the word “I” and the increased focus on the present in the reader letters during Covid-19, implying that reader letters reflected the heightened IPV prevalence. Regarding the IPV word-use categories “tentative”, “affect”, “we” and “you”, reader letters did not reflect the heightened IPV prevelance. Whereby most research has focused on IPV language-use in a personal context, such as within autobiographical narratives, this study showed word-use changes in natural language texts concerned with broader topics. And though it is unknown what exactly caused the changes, it implied that in times of crisis self-focused attention increased and attention was increasingly drawn to the present, which in turn, has been demonstrated to be an indicator of reduced well-being (Brockmeyer et al., 2015; Van der Vegt and Kleinberg 2020). This shows that language analysis has great potential to provide information about a population's well-being that would otherwise be harder to obtain. The gender differences in IPV-related language-use implied that language-use can be reflective of the female and male IPV victim ratio. In total, more letters were written by men, still, IPV-related word-use was only found in women’s language after the Bonferroni correction. Thus, only letters that were written by women contained typical IPV linguistic markers, which reflected the circumstance that women are more often subjected to IPV than men. The study of language is complex but studying to what extent language is reflective of someone’s physical and mental well-being has great value for real-life. The present study unveiled that in times of great insecurity and heightened IPV prevalence natural language-use changed.

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Appendix A

Descriptive Statistics of Samples IPV-related Word-use

Table A1.

Mean and Standard Deviations of Word Categories in relation to Samples.

Word Categories	Control No Pandemic_2019	No Pandemic		Pandemic No Lockdown		Lockdown	
	Mean (SD)	Mean	SD	Mean	SD	Mean	SD
I	1.096 (1.674)	1.365 (2.063)		1.592	1.877	1.754	2.195
We	1.11 (1.467)	1.056 (1.475)		1.402	1.661	1.189	1.442
You	0.331 (0.773)	0.350 (0.805)		0.518	1.147	0.317	0.712
Affect	5.300 (2.537)	5.30 (2.646)		5.143	1.994	4.96	2.736
Positive Emotion	3.010 (1.935)	3.07 (1.989)		2.874	1.767	2.930	2.249
Negative Emotion	2.241 (1.822)	2.163 (1.811)		2.225	1.577	1.937	1.526
Tentative	2.194 (1.565)	2.190 (1.626)		2.716	1.818	2.354	1.747
Focus Present	7.717 (2.966)	7.764 (3.329)		8.874	3.763	8.586	3.297