Societal interest in puppies and the Covid-19 pandemic: A Google Trends analysis

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Abstract

Impulsive puppy purchases have always been problematic and national policies have been developed to discourage this by promoting responsible dog ownership and limiting third party sales. Public interest in puppies between 2018 and 2021 was analyzed for five countries (Australia, Canada, Germany, United Kingdom and United States) using Google Trends data. The analysis revealed that societal interest in puppies increased during the examined period. The national Covid-19 pandemic response policies, including lockdowns, accelerated this trend significantly. An important result was that this trend was also present in German data. This suggests that national German policies relating to dog ownership, which are stricter than in other countries, and the associated costs have not deterred impulsive behaviours. Thus, this research provides evidence on how stricter policies on dog ownership may not be successful in discouraging impulsive behaviours and therefore, policymakers should focus on tackling illegal pet trade and on regulating online puppy purchases.

Keywords: Google Trends, puppy, Covid-19, dog ownership, puppy supply
Introduction

The global Covid-19 pandemic has had a significant effect on day-to-day life with government measures restricting socializing and freedom of movement. This has resulted to an increased concern regarding the impact of this unprecedented imposed isolation has had on mental health. In conjunction to this, it has been long recognized that dog ownership increases mental wellbeing (Knight and Edward, 2008), provides support during hardships (O’Haire et al, 2015) and reduces loneliness (Antonacopoulos, 2017; Hajek and Konig, 2019). Thus, Morgan et al. (2020) suggest that these benefits may have been the driver for people to seek to acquire a dog during the pandemic lockdown.

International literature investigating this human-animal bond during the Covid-19 pandemic indicate that pets provided substantial emotional support during lockdowns (Young et al, 2020; Bowen et al, 2020; Ratschen et al, 2020; Bussolari et al, 2021; Shoesmith et al, 2021), reducing the sense of loneliness (Bussolari et al, 2020; Ratschen et al, 2020; Oliva et al, 2021), supporting owners’ physical health (Bussolari et al, 2021; Oliva et al, 2021), and providing opportunities for outdoor socializing through routine dog walking (Oliva et al, 2021). However, some studies also identified some concerns relating to pet ownership during lockdown. These were mainly linked to practical aspects such as providing pet care (Ratschen et al, 2020; Shoesmith et al, 2021) and the inability to prioritize owner’s own access to healthcare due to lacking an established pet care plan (Applebaum et al, 2020). Shoesmith et al (2021) reveal that caring for animals was perceived stressful, especially for key workers when pet care plans were not available.

At the start of the pandemic, Frost (2020) emphasised on ‘the global emptying of animal shelters’ during lockdowns, and animal shelters in the United Kingdom reported a 53% increase in rehoming applications (Battersea), 45% increase in fostering applications (Blue Cross) and 253% increase in adoption enquiries (Wood Green) (Battersea, 2020). Other studies support that breeders’ waiting
lists had quadrupled (Pesce, 2020; Thomas, 2020). The Royal Veterinary College, in the United Kingdom, revealed that two in five puppy purchases were influenced by the pandemic (Waters, 2021) and Battersea (2020) revealed that 31% of new cat and dog owners had not considered acquiring a pet prior to the pandemic, while 38% stated that they brought their decision forward. Ho et al (2021) confirmed that the online enquiry of dog adoption increased worldwide during the pandemic, but they found that the interest increased during the start of the pandemic but was not sustained. The top countries with observed pet adoption internet-based enquiry popularity were the United States, Australia, Singapore, Canada, New Zealand, and the United Kingdom (ibid). The Dogs’ Trust (2020) revealed that Google searches for the term ‘adopt a puppy’ increased by 133% in the month after lockdown in the United Kingdom, searches for the term ‘get a puppy’ increased by 120% and searches for the term ‘buy a puppy’ increased by 115% for the same period. In addition, prices for puppies have exponentially increased globally, driven by this demand for puppies, with data revealing that average prices more than doubled (Battersea, 2020).

The present paper sets out to investigate whether there is a clear association between a country’s COVID-19 pandemic policy imposition and puppy popularity. The chosen countries for investigation were limited to English-speaking countries (Australia, Canada, the United Kingdom, and the United States). In addition to these countries, Germany was also included in the investigation as a special case. All countries have imposed laws and regulations on dog ownership and dog sales, with Germany having imposed the strictest laws in relation to acquiring a dog. Table 1 provides a summary of these countries’ dog related laws.
Table 1: Indication of imposed dog related laws

<table>
<thead>
<tr>
<th>Country</th>
<th>Dog licencing</th>
<th>Dog microchipping</th>
<th>Liability insurance</th>
<th>Third party puppy sale</th>
<th>Ban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Canada</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>United States</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Third party puppy sale

Source: Authors own compilation

Australia and the United Kingdom have similar dog ownership and dog sale laws and regulations. Australia does not have nationwide animal welfare laws as each state and territory regulates their own jurisdiction (RSPCA, 2020), however, these are largely harmonized. Both countries have mandatory dog microchipping, with the exception of the Australian’ Northern Territory (RSPCA, n.d.). In addition, the ban on third party puppy sales is gaining prominence in both countries. In Australia, the state of Victoria banned puppy farms in 2017 (Library of Congress, 2017) and the state of Western Australia introduced the law in 2021 (DLGSC, 2021). All other Australian states have not introduced the law yet. In the UK, England introduced a third party puppy sale ban in 2020 (Defra, 2020) while Scotland and Wales in 2021 (Scottish Government, 2020; Ou, 2021). Northern Ireland has yet to introduce a third party puppy sale ban (Rainey, 2021). Finally, dog registration at local authorities is prevalent within Australia’s states and territories (see City of Perth, 2021; Brisbane City Council, 2021; Agriculture Victoria, 2021). Dog registration at local authorities in the United Kingdom is not common practice, with the exception of the Northern Irish dog licencing scheme (Nidirect, n.d.).
Canada and the United States do not have nationwide dog ownership regulations but have various laws within each province and state respectively. Dog licencing is one of the regulations that is prevalent across both countries, where dog owners are required to register their dogs at the local council and pay an annual dog licencing fee (Loftsgordon, n.d; City of Toronto, n.d). Dog microchipping is not mandatory in either country and not as widespread as dog licencing but some cities such as Montreal and Laval, Canada, have imposed mandatory microchipping in their jurisdiction (CTVNews, 2019). Finally, there is no nationwide regulation on third party puppy sales but each province and state, respectively, have imposed their own bans. For example, in Canada, the cities of Richmond, British Columbia (Wintonyk, 2010), Montreal, Quebec (CBC, 2020), and Toronto, Ontario (GlobalNews, 2010) have imposed third party puppy sale bans. However, there are reports that claim pet stores are not complying with the law (CBC, 2020). In the United States, two states, California and Maryland, have imposed bans as well as 300 cities and counties (ASPCA, n.d).

Germany is a country with the most elaborate dog ownership laws. Dog owners are required to register their dogs at their local councils and pay an annual dog licencing fee (Yamini, 2020). In addition, they are required to microchip their dog, and to take up liability insurance (ibid). Liability insurance for all dogs is compulsory across all German federal states with the exception of North Rhine – Westphalia, where liability insurance is only compulsory for dogs over 40 cm (Iamexpat.de, n.d). Finally, there is no specific ban on third party puppy sales, but reports indicate that pet stores stopped selling dogs in the 1970s and today only one pet shop in the whole country continues to sell dogs (Crair, 2015). In light of the above, Germany was also included within the analysis of this paper to investigate whether stricter dog ownership laws and additional bureaucracy have restricted what seems to be an impulsive behaviour in societal interest in puppies.
Material and Methods

Policy stringency index

Hale et al (2021) have created a global panel of pandemic policies known as the Oxford COVID-19 Government Response Tracker (OxCGRT). This panel includes four indices that were created by collating information on governmental pandemic response policies on 20 indicators. One of these indices is the policy stringency index, which records policies’ strictness resulting into ‘lockdowns’, restricting movement and people’s behaviour. This index was created by compiling nine indicators, with eight being information on containment and closure policies, inclusive of: school closure; workplace closure; cancelation of public events; restrictions on gathering size; public transit closure; stay at home requirements; restrictions on internal movement; and restrictions on international travel (Tatlow et al, 2021). An indicator related to health system policies, specifically on public health campaigns, was also included (ibid). The policy stringency index values range between zero and 100.

The earliest available policy stringency index data was January 21st, 2020 and was given on a daily format thereafter. For the purpose of this study, the data was converted into weekly mean policy stringency index by use of Microsoft Excel. The data was available for the five countries but not for the separate devolved nations of the United Kingdom; for the devolved nations, Tatlow et al (2021) provide a thorough account of the differences between their pandemic responses.

Google Trends data

Google remains the dominant internet search engine worldwide, accounting for over 80% of desktop search traffic (Statista, 2021). Google Trends is a publicly available platform that tracks users’ search queries over time (Carriere-Swallow and Labbe, 2013). Before being published, data are anonymized, categorized, aggregated and undergo normalization in order to be rescaled and transformed into a popularity index with values between zero and 100 (Google, n.d.). The resulting data is considered to be representative despite trends being created only from a fraction of all data held (ibid). Google
(n.d.) indicates that their sampling is of a large pool of billion daily searches and is large enough to be considered representative. They also clarify that data is filtered to exclude duplicate searches and searches made by a very small number of people (ibid).

According to Carriere-Swallow and Labbe (2013), Google Trends’ random sampling could result in measurement error, as sampling is updated every 24 hours and generates slightly different series each time. To address this, they have suggested that a process of multiple samples of the Google Trends data for the same keywords are generated as to identify the sampling noise (Carriere-Swallow and Labbe, 2013). The analysis can then be conducted using the mean popularity index (Schaub et al, 2020).

For the present analysis, data extraction was based on weekly Google Trends data between November 4th, 2018, and May 11th, 2021. For the United Kingdom specifically, four additional Google Trends data were extracted for each nation (England, Northern Ireland, Scotland, and Wales). Sampling noise is negligible, and the mean has been created from six data downloads, between May 10th and May 17th, 2021. All included countries apart from Germany have English as one of their official languages, and as such, they all had a common search term. When deciding which search term to use, ‘puppy’, ‘pup’ and ‘young dog’ were tested, however, ‘puppy’ was revealed as the most popular search term (94%) and therefore, it was used for all English-speaking countries. The search term ‘welpen’ was used for Germany.

**Methodology**

Initially, the Poisson regression model (Frome, 1983) was employed to analyse the association between each country’s COVID-19 pandemic policy impositions and puppy popularity. Following Bai and Perron’s (1998; 2003) procedure further allows the testing of the hypothesis that the Covid-19 pandemic and its associated lockdowns have had a significant impact on puppy popularity. As such,
changes in puppy popularity trend within a multiple linear regression model were explored with the aim to test if structural breaks occur and whether these coincide with the pandemic’s policy timeline. The structural break analysis allows to investigate if trends in online puppy popularity shifted over time. Specifically, it allows to estimate how many times there is a shift in puppy popularity trends, and whether this shift is an upward or downward shift in trend. When this analysis is applied on the COVID-19 policy stringency index, it allows to identify how many times the government lockdown laws changed over time and whether these changes included stricter lockdown rules or loosening of the rules. Once these are identified, a comparison of the timeframe of these shifts and changes can illustrate whether online puppy popularity shifts in trend followed the changes in government lockdown rules.

Within this linear regression model, the Covid-19 policy stringency index, and the online puppy popularity index are expressed as a function of time with s number of changes/shifts, also known as structural breaks (Ditzen et al, 2021):

\[ y_t = x_t^\prime \beta + z_t^\prime \delta_j + u_t \]  \hspace{1cm} (1)

where \( \beta, \delta \) are the coefficients, \( t= T_1, T_2, \ldots, T_s \) are structural break points, \( j= 1, \ldots, s+1 \) are structural breaks, and \( y_t \) is the popularity index at time \( t \). \( x_t^\prime \) is a (1 x p) vector of variables without structural breaks, \( z_t^\prime \) is a (1 x q) vector of variables with structural breaks, and \( u_t \) is the disturbance at time \( t \).

When dates of structural breaks are unknown, Bai and Perron (1998) have proposed the test of three hypotheses to identify and estimate these structural breaks (Ditzen et al, 2020):

i) No break-trend shift/lockdown rule change versus a fixed number of s break-trend shifts/lockdown rule changes:

\[ H_0: \delta_1 = \delta_2 = \ldots = \delta_{s+1} \hspace{0.5cm} \text{vs} \hspace{0.5cm} H_1: \delta_k \neq \delta_j \hspace{0.5cm} \text{for some} \hspace{0.5cm} k \neq j \]  \hspace{1cm} (2)
ii) No break-trend shift/lockdown rule change versus the alternative of an unknown number of break-trend shifts/lockdown rule changes that is limited to a specific maximum $1 \leq s \leq s^*$

$$H_0: \delta_1 = \delta_2 = \ldots = \delta_{s+1} \text{ vs. } H_1: \delta_k \neq \delta_j \text{ for some } k \neq j \text{ and } s = 1, \ldots, s^*$$ (3)

iii) $s$ break-trend shifts/lockdown rule changes versus the alternative of $s + 1$ break-trend shifts/lockdown rule changes:

$$H_0: \delta_j = \delta_{j+1} \text{ for one } j = 1, \ldots, s \text{ vs. } H_1: \delta_j \neq \delta_{j+1} \text{ for all } j = 1, \ldots, s$$ (4)

Bai and Perron (2003) advise that for empirical applications the recommended approach of testing is to first conduct the second test to define whether there is at least one break-shift/change identified and then to decide on the number of break-shifts/changes based on the third test. This approach was followed for both the popularity index and policy stringency index. To conduct these tests, data was extracted and collated using Microsoft Excel and analysed using a community contributed Stata package xtbetween (Ditzen et al, 2021) on Stata SE 16 (StataCorp, LLC).

Results

The results of the initial Poisson regression models (Table 2) evidenced that the restrictive governmental measures have contributed to puppy popularity in all examined countries. All results were found to be statistically significant at the 1% level of significance.

Table 2: Poisson regression model results

<table>
<thead>
<tr>
<th>Country</th>
<th>Coefficients</th>
<th>Std Error</th>
<th>95% Conf. Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.006</td>
<td>0.005</td>
<td>0.005</td>
</tr>
<tr>
<td>Canada</td>
<td>0.005</td>
<td>0.004</td>
<td>0.004</td>
</tr>
</tbody>
</table>
Overall, all examined countries experienced structural breaks in puppy popularity that align with the changes in lockdown policies. Table 3 and Table 4 provide the statistics, number of structural breaks and corresponding weeks for each series. Apart from the United States and Canada who had only experienced a single structural break by the time of the present analysis, all other countries had exhibited two structural breaks. Their initial structural break coincides with the imposition of stricter restriction policies, either detected on the same week or with a difference by just one week.

Table 3: Changes in puppy popularity by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Test statistic</th>
<th>Weeks of Structural Breaks</th>
<th>Last week of min popularity</th>
<th>Weeks of max popularity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UDmax (tau)*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>409.04</td>
<td>March 22, 2020</td>
<td>Sept. 27, 2020</td>
<td>May 12, 2019</td>
</tr>
<tr>
<td>Canada</td>
<td>797.84</td>
<td>March 15, 2020</td>
<td>-</td>
<td>Nov. 18, 2018</td>
</tr>
<tr>
<td>Germany</td>
<td>478.15</td>
<td>March 15, 2020</td>
<td>Dec. 13, 2020</td>
<td>Nov. 24, 2019</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>668.53</td>
<td>March 22, 2020</td>
<td>Oct. 4, 2020</td>
<td>July 30, 2019</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>161.7</td>
<td>March 15, 2020</td>
<td>Dec. 13, 2020</td>
<td>April 28, 2019</td>
</tr>
<tr>
<td>Scotland</td>
<td>386.66</td>
<td>March 29, 2020</td>
<td>Oct. 4, 2020</td>
<td>July 9, 2019</td>
</tr>
<tr>
<td>Wales</td>
<td>216.33</td>
<td>March 22, 2020</td>
<td>Oct. 18, 2020</td>
<td>May 5, 2019</td>
</tr>
<tr>
<td>United States</td>
<td>196.35</td>
<td>March 15, 2020</td>
<td>-</td>
<td>Nov. 11, 2018</td>
</tr>
</tbody>
</table>

*Bai and Perron critical values: 12.37 (1%), 8.88 (5%), 7.46 (10%)
The analyses for the second structural break indicate more variability. In the case of Australia, the puppy popularity index and the stringency index structural breaks are apart by 20 weeks, the United Kingdom’s is apart by ten weeks and the German indices’ structural breaks are apart by a week. At the time of analysis, Canada and the United States had not exhibited a second puppy popularity index structural break but had demonstrated a second policy stringency index structural break, with Canada’s closer to the European timeline and the United States closer to the Australian timeline.

Table 4: Changes in policy stringency by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Test statistics</th>
<th>Weeks of Structural Breaks</th>
<th>Weeks of lowest stringency</th>
<th>Weeks of highest stringency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Canada</strong></td>
<td>247.11</td>
<td>March 22, 2020</td>
<td>Dec. 27, 2020</td>
<td>Jan. 19, 2020</td>
</tr>
<tr>
<td><strong>States</strong></td>
<td>177.01</td>
<td>March 22, 2020</td>
<td>Feb. 21, 2021</td>
<td>Jan. 19, 2020</td>
</tr>
</tbody>
</table>

*Bai and Perron critical values: 12.37 (1%), 8.88 (5%), 7.46 (10%), **First week of available data was January 19, 2020

Australia

According to the policy stringency index (Figure 1) a change towards stricter government policies started on the week of March 22\textsuperscript{nd}, 2020, with the strictest government policies being set between the weeks of August 9\textsuperscript{th}, 2020, and September 20\textsuperscript{th}, 2020. Thereafter, stringency remained high but at a lower level. The Google Trends popularity index indicated an exponential interest in puppies
starting on the week of March 22nd and continuing until the week of September 27th, 2020. Thereafter, popularity remained high albeit with a downward trend.

Figure 1: Australian Policy stringency index and Google Trends puppy popularity index

The Canadian policy stringency index (Figure 2) indicated that there were two periods identified as the strictest government policies’ imposition, the first between the weeks of January 10th, 2021 and February 28th, 2021, and the second between the weeks of April 4th, 2021, and May 2nd, 2021. Both periods are included after the second structural break, which according to the data occurred during the week of December 27th, 2020. Hence, stringency remained at its highest until the date of data collection. The Google Trends popularity index indicated an exponential interest in puppies starting on March 22nd and continued to increase with an upward trend thereafter.
Figure 2: Canadian Policy stringency index and Google Trends puppy popularity index

According to the German policy stringency index (Figure 3) a change towards stricter government policies started on the week of March 22nd, 2020, with the country experiencing variable high levels of stringency until December 6th, 2020. Thereafter, stringency peaked during the week of January 3rd, 2021, and continued to remain high but with a downward trend. The Google Trends popularity index indicated an exponential interest in puppies starting on the week of March 15th and continuing until the week of December 13th, 2020. Thereafter, puppy popularity peaked on the weeks of December 27th, 2020, and January 17th, 2021, and remained high albeit with a downward trend.
According to the policy stringency index of the United Kingdom (Figure 4) a change towards stricter government policies started on the week of March 22nd, 2020, with the country experiencing variable high levels of stringency until the week of December 13th, 2020. Stringency peaked during the weeks of January 10th, 2021, and February 14th, 2021. Thereafter, stringency continued to remain high albeit with a downward trend. The Google Trends popularity index indicated an exponential interest in puppies starting on the week of March 22nd and continuing until the week of December 13th, 2020. Thereafter, puppy popularity peaked on the week of December 27th, 2020, and remained high albeit with a downward trend.
Regarding the United Kingdom’s devolved nations’ responses, all four nations imposed and relaxed restrictions at similar timing however there are variations on the overall level of stringency, for example Scotland was reported as having the highest stringency index level, while England was reported to have had the lowest (Tatlow et al, 2021). All four nations were reported as having imposed their highest stringency levels at similar timing, early January 2021 (ibid). Finally, at the time of publication (April 2021), Tatlow et al (2021) indicated that all nations stringency index had a downward trend.

Google Trends popularity indices (Figure 5) were extracted for the four United Kingdom nations. As each devolved government imposed their own pandemic policies on slightly different timelines and levels, a variation on structural breaks is also evident on the popularity index but appears to follow the reported stringency trends. Specifically, the English and Welsh Google Trends popularity index
indicated an increase in interest in puppies, with an upward trend, starting on the week of March 22nd, while the Northern Irish started on the week of March 15th and the Scottish started on the week of March 29th, 2020. England’s and Scotland’s second structural break coincided on the week of October 4th, with the Welsh following a similar timeline, indicating a second structural break on the week of October 18th, 2020. The second structural break of Northern Ireland lagged considerably compared to the other nations, with the data indicating the week of December 13th, 2020. Finally, all nations’ puppy popularity peaked on the week of December 27th, 2020 and remained high albeit with a downward trend.

Figure 5: UK devolved nations’ Google Trends popularity indices

United States

According to the American policy stringency index (Figure 6) a change towards stricter government policies started on the week of March 22nd, 2020, with the country experiencing variable high levels
of stringency until the week of February 21st, 2021. Stringency peaked during the weeks of November 22nd, 2020. Thereafter, stringency continued to remain high albeit with a downward trend. The Google Trends popularity index indicated an increase in interest in puppies starting on March 15th, peaking during week February 7th, 2021, and continued to remain high but with an downward trend.

Figure 6: American Policy stringency index and Google Trends puppy popularity index

Discussion

Overall, the analysis provides empirical evidence that the Covid-19 pandemic and its associated lockdowns have had a significant impact on online puppy search popularity in all investigated countries. It could be argued that the term used, ‘puppy’, may be too broad and may not represent puppy purchases during the pandemic. The decision to use the term ‘puppy’ was based upon the interest to include all searches and their variations, such as ‘buy a puppy’, ‘adopt a puppy’, ‘get a
puppy’, etc. In addition, this paper set out to examine societal interest in puppies rather than actual purchases of puppies. Indeed Battersea (2020) suggests that only a proportion of searches may have converted into actual purchases. However, they also note that the overall interest has increased beyond normal levels. This analysis confirms that the interest has increased above normal levels and was directly influenced by the pandemic response policies.

The alignment of the Google Trends’ data structural breaks with the policy stringency index structural breaks, in most cases, was indisputable. The only exceptions were Canada and the United States where their Google Trends data revealed a single structural break whereas their policy stringency index revealed two. One may argue that their second structural break in puppy popularity was not captured within the examined data as both countries appear to have had delayed peak of interest, both in February 2021, while all other countries peaked at least a month prior to February 2021. All other countries, apart from Australia, experienced a peak in puppy popularity during December 2020-January 2021; Australia experienced a peak in April 2020.

The German outcomes also align. This indicates that German internet users displayed the same behaviour in puppy interest. This is despite Germany having a more elaborate and strict law on dog ownership. One would expect the additional bureaucracy and expected associated costs would deter impulsive behaviour in searching and subsequently acquiring a puppy. Again, it could be argued that this online search may not have converted into actual purchases, but these searches indicated that the German population was not behaviourally restricted due to potential additional financial and bureaucratic burdens that are associated with dog ownership.

The importance of these findings is highlighted when paired with evidence of overall increased dog purchases during the pandemic. In Germany, the German Kennel Club (VDH) reported a 20% increase in dog purchasing during 2020 (Pieper, 2021). Canada experienced an 18% increase in pet
owners (Narrative Research, 2020) and the United States experienced an increase that contributed to an unprecedented 70% of US households owning a pet (Phillips-Donaldson, 2021). In the United Kingdom, the Pet Food Manufacturers Association (2021) estimated that 3.2 million households acquired a puppy during the pandemic, and Pendrick (2021) reported over two million Australian households acquired a pet during the pandemic.

A matter of concern raised by German Animal Welfare Federation (2020) was that domestic breeders were not able to meet the increased demand which led to online purchasing. This has also been evident in all reported countries, with reports indicating that 87% of puppy purchases in the United Kingdom were completed through online platforms (Maher, 2021). The international literature on online puppy purchases agree that online platforms facilitate illegal puppy trade (Jones, 2010; Schießl, 2010; International Fund for Animal Welfare, 2012; Maher, 2017). Jones (2010) supported that the increase in online use for puppy acquisition had resulted in an increase in US puppy mill establishments. Ford (2021) indicated that illegal puppy trade is one of the illegal activities that have boomed in Europe, and the German Animal Welfare Federation (2020) reported that during the pandemic there had been an increase in illegal pet trading. These activities pose a real animal health and welfare threat, compromising new-born and breeding dogs’ health and welfare alike.

Online puppy purchasing is largely unregulated. Maher (2017) discusses that for the United Kingdom, any breeding and selling dog regulations were put into place when online trade had not become mainstream yet. However, international animal welfare organisation such as the international animal charity Four Paws (Schießl, 2010) and International Fund for Animal Welfare (2012) had already expressed their concern that online advertisements allow illegal pet trade to boom. This has also been supported by various national animal welfare organizations such as the German Animal Welfare Federation (2020), United Kingdom’s Battersea (2020) and Dogs’ Trust.
Yeates and Bowles (2017) had reported that illegal breeders made an effort to pose as online licenced breeders by renting homes to deceive potential customers into believing the puppies had been born into a good environment with high animal health and welfare standards. However, with the lockdown restrictions during the pandemic, unscrupulous breeders, be it domestic or from abroad, may have not needed to go to such lengths to convince their customers.

There have been clear calls to regulate the online pet trade space (Schießl, 2010; Maher, 2021), however, to the author’s knowledge, only Australia has imposed some regulations that target online pet trade. In particular, in the State of Victoria the listing of the puppy’s microchip number onto the website advertisement is mandatory and both the website and the seller are liable if non-compliance is detected (Orr, and Hazel, 2018). In addition, in the state of Queensland, in the Australian Capital Territory, and in the state of South Australia, the listing of the breeder’s registration number onto the website advertisement is mandatory (Goncalves, et al, 2020). However, Goncalves et al (2020) could not conclude on the level of compliance. They noted that they encountered invalid numbers when cross-checking registration numbers. Their recommendation for improvement was that a system of cross-checking is established for potential consumers.

Finally, another matter of concern is whether all new owners will keep their pandemic dogs once life resumes back to normal. The international literature, for decades, has indicated that pet owners’ lack of understanding of the commitment, be it financial or time (Holland, 2019), changes in lifestyle (Scarlett et al, 1999), and dog behavioural issues (Salman et al, 2000) result in dog abandonment and relinquishment. Holland et al (2021) discuss that the Covid-19 restrictions have impacted dog behaviour with dogs reported as expressing separation anxiety behaviours when left alone. This has had a negative impact on the dog ownership experience (Gray, 2020; Holland et al, 2021). In the United Kingdom, more than 25% of dog owners reported that their dog had developed behavioural
issues due to the Covid-19 pandemic (Gray, 2020), and 11% of UK households that participated in the Pet Food Manufacturers Association survey in 2020 had reported of already relinquishing their pet (Pet Food Manufacturers Association, 2020).

Conclusion

There is empirical evidence that increased societal interest in puppies was directly affected by the Covid-19 pandemic and its associated restrictions within all countries this paper investigated. Concerns arise on the source of acquisition and the future of these pandemic puppies. The findings indicate that any policy to safeguard animal health and welfare of dogs, and specifically puppies, should not aim to impose additional financial and bureaucratic burdens on dog owners as these have been revealed to be unsuccessful in deterring impulsive purchasing behaviour. Policy should focus on regulating supply and particularly, there is evidence of immediate need to tackle illegal pet trading and a need to regulate online pet purchasing.
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