Correction to: Communication about Hereditary Cancers on Social Media: a Content Analysis of Tweets about Hereditary Breast and Ovarian Cancer and Lynch Syndrome

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The original version of this article unfortunately contained mistakes.

- Fourth sentence of the Abstract should read:

A total of 47,396 tweets were included in our dataset. The majority were retweets (60.8%) and users came from 654 different cities. Most tweets were considered “informational” (57.5%) and were designed to provide resources to the public. Individual users (40%) were the most common contributors.

- Methods section, last sentence of 1st paragraph should be:

The online version of the original article can be found at <https://doi.org/10.1007/s13187-018-1451-4>

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A total of 63,770 tweets were originally identified using our search strategy. The final sample consisted of 47,396 tweets.

- Methods section, a new paragraph should be inserted after the 4th paragraph:

After coding was complete, we then cleaned the dataset to remove tweets that were misclassified. We discovered that the hashtag BRCA was also used during this time period to reference the Better Care Reconciliation Act (BCRA). Thus, we removed tweets that were referencing the BCRA but used the hashtag of BRCA. This resulted in a final sample of 47,397.

- Results section, 1st paragraph should be:

Our final sample included 47,397 tweets that included a hashtag related to HBOC or LS. Users represented 654 cities and 105 countries. The majority of tweets were retweets of previous conversations; just over one-third of tweets were original content (35.5%).

- Results section, first two sentences of the 2nd paragraph should read:

Categories and emotions of tweets were most frequently “neutral” (73.4%). Most tweets were classified as informational (57.5%), other types of tweets included opinion (18.6%) and testimonial (11.8%). Types of information included real world applications (48.4%), practice/implementation (23.6%), and policy (11.1%) (Tables 1 and 2).

- Results section, 1st sentence of the 3rd paragraph should read:

The most frequent contributors to the Twitter conversation included the “Anti-Cancer Club” (@anticancerclub) and a combination of individual users (Table 3).

- Discussion section, last five sentences of the 4th paragraph should read:

Finally, we identified tweets that used the hashtag BRCA in reference to the Better Care Reconciliation Act (BCRA) after completing coding using machine learning. We removed these tweets; however, we were unable to re-classify the new dataset using machine learning techniques. The volume of unrelated BRCA tweets could have impacted machine

learning or have led to a slightly skewed machine categorization. Our team worked to reduce this impact by removing irrelevant tweets post-machine learning and evaluating the machine's coding of other categories after identification of the incorrect acronym usage. Future studies can work toward identification of as many irrelevant tweets from acronym usage or misspelling at the data collection stage to best avoid this same issue.

- Presented here also are the corrected Tables 1, 2 and 3.

Table 1 Descriptive Information about Tweets and Users

Category	N	%
Post Type		
Reply	1740	3.7
Retweet	28,834	60.8
Tweet	16,822	35.5
Type of Tweet		
Informational	27,259	57.5
Testimonial	5597	11.8
Opinion	8827	18.6
Research	1496	3.2
Other	2041	4.3
Type of Information		
New discoveries in the field	4601	9.7
Practice/implementation	11,169	23.6
Real world applications	22,927	48.4
Policy	5259	11.1
Other	1101	2.3
Number of cities/states	654	
Number of Countries	105	
Categories		
Negative	3104	6.6
Neutral	34,847	73.4
Unclassified	1726	3.64
Positive	7719	16.3
Emotion		
Anger	553	1.2
Disgust	622	1.3
Fear	1370	2.9
Joy	8864	18.7
Neutral	29,609	62.5
Sadness	1538	3.2
Surprise	23	0.1
Unclassified	4817	10.2
Followers	5217	0–3,741,121
Following	2849	0–476,597
Gender		
Female	16,496	63.2
Male	9623	36.8

Table 2 Examples of Tweets and Information

Type of Tweet	
Informational	Do you have a genetic mutation? Visit our website for lots of information and advice > https://t.co/vzHHL9X6q #BRCA #lynch https://t.co/aPAjuOs0Dy “#Mammograms are considered to be life-saving for #women in their #thirties with #BRCA mutations. @BrynaSF_edu https://t.co/hz6MflbK89 “How do we know #BRCA genes lost their function?” Explained by our CTO, Zhenyu Xu @EPFL Applied #MachineLearning Days @appliedmldays https://t.co/JCwQKXpFeE
Testimonial	How do I tell my #child that I have #cancer? https://t.co/htZN6ug2jh #coloncancer #Lynchsyndrome #prostatecancer https://t.co/HUFGcMc6O1
Opinion	On her deathbed, mom asks daughter to promise to have life-saving surgery https://t.co/tSu9JO5eTj via @TODAYshow #brca RT @anticancerclub #Cancer and a crisis of confidence https://t.co/gRrhRL27JY #LynchSyndrome Re-learning what works for your body during and after treatment https://t.co/Myg5z2N8hc #LynchSyndrome #Cancer #UterineCancer
Research	Practicing #kindness and relaxing beliefs to #heal https://t.co/Myg5z34JFM #LynchSyndrome #Cancer RT @Ashworth_SF Just out, our review of the state of the art: PARP inhibitors #BRCA @UCSFCancer @UCSF_BRCA https://t.co/SGQbtg2UHT https://t.co/J5YZUi4tfx #Prophylactic #Treatment Reduces Neratinib-Related Toxicity in #HER2+ #BreastCancer https://t.co/omn6raCYcm via @onclive #brca #cancer
Other	How should we screen #endometrial cancer for #Lynchsyndrome? Manchester Mtg @HHampell @karenluMD @TMSnowsill @CaPP3 https://t.co/8YIL3RCrpl
Type of Information	
New discoveries in the field	RT @SFBusinessTimes This week’s #biotech #podcast: Beyond @AngelinaJolie: Tracking down the cancer-causing #BRCA gene mutation https://t.co/dy3gyqWYWe https://t.co/S4SR4dJ0ml RT @Roche Are you aware of the risk factors of ovarian cancer? https://t.co/bDBZHW7yX #BRCA #HereditaryCancer https://t.co/DrrsGJAbKo
Practice/implementation	RT @AmbryGenetics Genetic testing is recommended if you have close relatives w a known #BRCA mutation. https://t.co/9BK5S8tTuf #BreastCancerAwarenessMonth https://t.co/7tDUTnWQPA RT @SCSanderson Should everyone be offered BRCA genetic testing for cancer risk, regardless of their personal or family history? #BRCA #cancer RT @sloan_kettering “If I have #BRCA1 or #BRCA2 gene mutation should I get a preemptive #mastectomy?” Dr. Barrio weighs in https://t.co/UAdGHimDfM #BCSM #BCAM https://t.co/45DB582O3e
Real world applications	Adapting to body changes during #cancer treatment https://t.co/fnaXDiS2LU #LynchSyndrome https://t.co/cbubC70fa2 Helping people and raising awareness @catnd https://t.co/Myg5z34JFM #LynchSyndrome March is #ColonCancerAwarenessMonth! #LynchSyndrome https://t.co/G5eeSGbyN3 RT @Rewire_News How uncertainty around the new health-care law could hurt people at risk for breast cancer https://t.co/p2UIFA4dve #AHCA #BRCA https://t.co/h2zG8C4EVV
Policy	RT @ShannonWestin Another great option for #BRCA mutant recurrent #ovariancancer @US_FDA approves Lynparza #PARPi maintenance https://t.co/Mrxkf8rJit #gynccsm
Other	How do I tell my #child that I have #cancer? https://t.co/htZN6ug2jh #coloncancer #Lynchsyndrome #prostatecancer https://t.co/HUFGcMc6O1

Table 3 Most Common Tweeters

Account	Name	Number of Tweets	Account Information	Type of Account
@anticancerclub	Anti-Cancer Club	2261	On a mission to help people craft a personalized anti-cancer life. Information, education and a chance to connect!	Organization
@BRCAresponder	Amy Byer Shainman	1354	Education-Advocacy-Support for #BRCA and other #hereditarycancer syndromes. Exec. Producer @pinkandbluedocs Co-creator @Genc_SM #GenCSM	Individual User
@LguzzardiM	Lisa M Guzzardi, RN	976	#PatientAdvocate dedicated to providing up to date research for 2.9 K consumers at risk & clinicians #JournalClub #bcsn #gyncsm #PancChat #BRCA #hereditarycancer	Provider
@BRCAUmbrella	BRCA Umbrella	799	Join others sharing experiences of living with a BRCA mutation or a high cancer risk at http://www.brcaumbrella.ning.com	Organization
@karenBRCAMTL	Karen Lazarovitz	797	Creator #BRCA Sisterhood & Supportgroup #Montreal #breastcancer#hereditarycancer #geneticstesting #publicspeaker my story #mastectomy #tattoos link below	Individual User
@BRCAinfo	Tobey	745	#BRCA #ConsumerAdvocate #research #immunotherapy #BladderCancer #patient #family #health #dogs #coffee #books	Individual User
@GenC_SM	#GenCSM	561	#Tweetchat & community for those interested in #Genetics and #HereditaryCancer syndromes. Co-creators: @MyGeneCounsel #BRCAresponder @ _GeorgiaHurst	Online Community
@CancerRoadTrip	#CancerRoadTrip	511	Inspiration, joy and discovery through travel. Life is an adventure. Live it! Award Winning #TravelBlogger, Aspiring Photographer, Instagram: @CancerRoadTrip	Individual User
@BreastAdvocate	Breast Advocate	446	Free #BreastCancer #Surgery#SharedDecisionMaking App for newly-diagnosed, Survivors, Thrivers & Previvors. Co-created by breast cancer specialists & patient advocates.	Organization
@MNWilliams74	Michelle Williams	559	No longer active	Individual User
@brcafindn	BRCA Foundation	394	No longer active	Organization
@NickiDurlister	Nicki B. Durlister	350	#BRCA2 #BreastCancer #Survivor, #Author & Founder #BeyondthePinkMoon support group @facebook for survivors, previvors, MDs & HCPs w/ 7.8 k members. #bcsn #gyncsm	Online Community
@Linktheribbons	Link The Ribbons	340	Raising Cancer awareness across the spectrum. Collaboration and cooperation by sharing information, experience and hope. United we are stronger. #Linktheribbons	Online Community
@drkdhoffman	Kathleen D. Hoffman	324	Healthcare Consumer Engagement, Healthcare Content Writer, SocialMedia, Blogging, Marketing, Health Communication, Health Literacy, Social Science Researcher	Researcher
@carefreemajorca	Hamill Care	310	#accessible #holidays, #tourism and #DisabledSport in #Mallorca for those with #disability and #seniors. 24/7 #CARE	Individual User
@DiepFlapBreast	PRMA Plastic Surgery	272	PRIMA #PlasticSurgery specializes in advanced #breastreconstruction after #breastcancer – DIEP, SIEA, GAP, TUG, Fat Grafting & One-Step.	Provider Organization
@luisa_tasayco	Maria	256	PhD Chemistry Emerita Professor Chemistry/Biochemistry CCNY Biochemistry/Biophysics Graduate Center CUNY	Individual User
@MBCC_MHBT	Male Breast Cancer	247	The Male Breast Cancer Coalition (MBCC) is your resource for MEN with breast cancer. Our reach is global and continues to grow daily. #MenHaveBreastsToo	Organization
@IrinaBrooke1	Mutant Strong	224		Individual User

Table 3 (continued)

Account	Name	Number of Tweets	Account Information	Type of Account
@drchrysopoulo	PRMA Plastic Surgery	215	BRCA2 BC survivor Creator of Mutant Strong on Facebook. Mutant_Strong on Instagram. Patient, BRCA/HBOC advocate. Blog: mutantstrong.com #Surgeon & President at PRMA #PlasticSurgery. Tweet a lot about #BreastReconstruction & #SharedDecisionMaking. Creator of @BreastAdvocate App & @InvCibleScars	Provider

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