

Tumblr's Mental Health Community:
The Patterns of Microblogging on Trends of Depression

by

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Introduction:

Social Media has quickly become a dominant aspect of many individuals' lives. In recent years, a form of social media and type of blogging called microblogging has emerged (Kaplan 2011). Microblogging is characterized by shorter post sizes such as one image, one video, or a short paragraph of information (Aichner, Jacob 2015). These short posts are known as microposts and are viewed in a continuous stream (Aichner, Jacob 2015). This information is easily shared within an online community from user to user. A popular microblogging site called Tumblr (www.tumblr.com) has seen both increases in users and posts in the last few years (Chang 2014).

In the latest poll, Tumblr has over 166.4 million users and over 73.4 billion posts (Chang 2014). Tumblr is unique in that it offers much more social interaction and many forms of personal communication and expression between users compared to traditional blogging platforms like BlogSpot (www.blogspot.com) or Wordpress (www.wordpress.com). This new form of communication within the microblogging community allows for sub-communities to form around similar interests and values (Bargh 2000). These communities become an integral part of many users' daily lives, and 43% of virtual community (regardless of which one) users, say that their communities are just as important as their "real life" community (Parsell 2008).

Of the more than 166.4 million blogs being hosted by Tumblr, 70% serve as online diaries for the users, where they are able to self-disclose about their lives (Qian 2007). However, because the posts of bloggers are open to thousands of

people within the Tumblr community, this blogging can be seen as a social activity (Qian 2007). David Karp, the former CEO of Tumblr, has stated, "It's very different behavior. People come here for the same reason they turn their TV on when they come home at the end of the day ... It's something to do before checking your email, it's a chance to go and see stuff you enjoy, let's you escape from the real world. And that media experience is one that ends up consuming a fair bit more time than just the amount of time you spend checking your friends updates on Facebook or Twitter or Foursquare" (Indvik 2013).

One such community that exists within the sub-communities of Tumblr is made up of users who self-identify as having mental-health issues. This community is a smaller community, but it has a significant following of users with a wide range of mental-health issues including schizophrenia, eating disorders, and depression. Tumblr users within this community frequently post personal text posts and images of their thoughts and experiences with their mental-health issues including self-harm and suicidal ideation. These posts are then exchanged within the community.

Tumblr has shown up in the media frequently in the past, because Tumblr users are allowed to post such harmful content and the site allows pro-suicide, pro-anorexia, and pro-bulimia blogs. In February 2012, Tumblr announced that the site would ban Tumblr blogs that promoted harmful material, however, the site continues to have these Tumblr Blogs (Staff 2012). With the suicide of a British teenager named Tallulah Wilson, the issue of suicide, self-harm, and depression promotion became an even larger issue, because Wilson maintained a self-harm Tumblr blog (Maria 2014). Wilson had a total of 18,000 followers, who would swap

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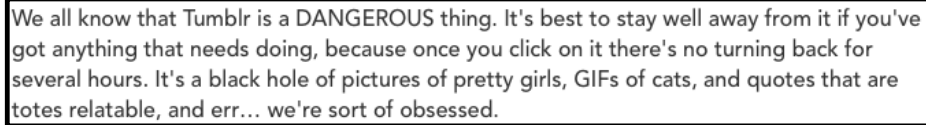
personal, self-harming photographs with one another (Maria 2014). A Tumblr user reportedly sent Wilson an image of a noose with the message “here is your new necklace, try it on” shortly before Wilson died by suicide (Maria 2014). Parents and the British government came together to attempt to pass laws to remove “toxic” material, however, no laws have been enacted (Hern 2014).

Since the rise of social media there has been speculation about the effects of social media on mental health issues. The relationship between social media and mental health, which is so multi-faceted, still remains slightly unclear (Pantic 2014). Researchers have seen a correlation between social media users and the inability to relax, being victims of cyber bullying, the glamorization of addictive substances, decreases in happiness, and fear of being left out (Lasala et al. 2013, Pilioci 2012). Typically, social media users remain inactive while engaging in this activity and there have been links between sedentary ways of life and depression within adult populations (Teychenne et al. 2010). The amount of computer usage that an individual engages in is linked with increasing anxiety and depressive symptoms (de Wit Et al. 2011). Research has shown that using the popular social networking site Facebook (www.facebook.com) produces changes in one’s self-esteem (Gonzales et al. 2011). For some, this change is negative, but for others it is positive. Because there are differences in the reactions from individual people, researchers have a difficult time determining how detrimental social networking can be. However, researchers have enough findings to propose that there are possible detrimental effects to mental health among social networking users (Rajani et al. 2011).

In a recent study, 160 young adults were surveyed to examine the link between depressive symptoms and social networking usage. To determine the level of depression, the Beck Depression Inventory was used and there was a self-report of social media usage (Pantiac 2011). There was a statistically significant positive correlation between depressive symptoms and the amount of time spent using social networking sites (Pantiac 2012). However, this study did not explain if an increase in social media caused an increase in depression, or if an increase in depression resulted in an increase in social media use. Pantiac (2012) indicated that future studies should attempt to distinguish between these two correlations and see if causation exists.

It has been shown that the more social networking becomes prevalent in the lives of individuals for inter-personal communication and interaction, the longer individuals spend on the social networking sites (Pantiac 2012). Recent research has shown that young adults spend on average more than one hour a day on Tumblr and spend on average 14 minutes per visit (Fox 2012, Indvik 2013). Because of the steady rise of time spent on social networking sites, there have been assertions that young adults are becoming addicted to social networking. This type of addiction has been shown to produce negative mental health issues in users (Kuss 2011). A study between online social networking and addiction has shown that high use of social networking is related to negative attributes, such as low conscientiousness, high narcissism, decrease in academic achievement, decreases in stable, genuine relationships, and decrease in real life social community participations (Kuss 2011).

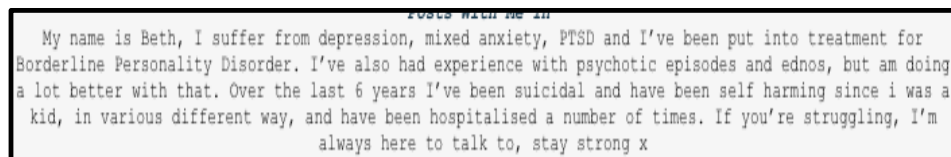
Specifically, within the Tumblr self-identified mental health sub-community, users have also self-identified as being addicted or obsessed with Tumblr. Figure 1 is an example of a Tumblr user who has stated how addictive Tumblr can be and individuals should not use Tumblr if they would like to get any other activity done.



We all know that Tumblr is a DANGEROUS thing. It's best to stay well away from it if you've got anything that needs doing, because once you click on it there's no turning back for several hours. It's a black hole of pictures of pretty girls, GIFs of cats, and quotes that are totes relatable, and err... we're sort of obsessed.

Figure 1 Tumblr user stating their Tumblr obsession

Tumblr users have even created posts that link towards research stating the average time spent on Tumblr and mocking the research. Tumblr users have stated that the average time spent on Tumblr daily is more like ten hours compared to 1.5. These users also frequently state their levels of depression. Figure 2 is an example of a Tumblr user “suicidalghosts” biography section. Within this biography, the Tumblr user states the mental-health issues that she suffers from and her mental-health history.



My name is Beth, I suffer from depression, mixed anxiety, PTSD and I've been put into treatment for Borderline Personality Disorder. I've also had experience with psychotic episodes and ednos, but am doing a lot better with that. Over the last 6 years I've been suicidal and have been self harming since i was a kid, in various different way, and have been hospitalised a number of times. If you're struggling, I'm always here to talk to, stay strong x

Figure 2: Tumblr user suicidalghosts biography section

Tumblr users state that they frequently use Tumblr as a way to achieve relationships and to be a part of a community that is supportive of them. Tumblr users have also described negative aspects of social withdrawal, lack of academic achievement, lack of genuine relationships, among other issues. These statements are very similar to Emile Durkheim’s theory of Anomie, which is a “condition in which society provides little moral guidance to individuals” (Gerber, Macionis

2010). Anomie results in the breakdown of social bonds between an individual and their community and usually arises when there is a mismatch between personal or group standards and a society's standards (Gerber, Macionis 2010). These breakdown of bonds, causes individuals to remove themselves from their society and seek inclusion elsewhere (Gerber, Macionis 2010).

This behavior can be seen within the self-identified Tumblr mental-health community. In current society, mental-health issues are rarely spoken about and many of these Tumblr users may feel as if they are receiving little to no support from their "real-life" community. In the past, society has seen individuals who do not fit in with current societal morals turn to sub-communities or counter-culture movements. With the current dependency on social media, an assertion could be made that these online communities are taking the place of past "real-life" sub-communities like the "hippies" of the sixties or the "punks" of the seventies. Tumblr users who experience "normlessness" (a feeling of alienation) are turning to the self-identified Tumblr mental-health community to feel inclusion in a group of individuals who experience similar behaviors, morals, and ideals concerning mental health (Gerber, Macionis 2010).

For this particular research paper, a focus has been placed on examining depression within the Tumblr sub-community. For the purpose of this research, individuals were defined as exhibiting, depression, if they self-labeled as depressed or suicidal and displayed behaviors or self-labeled with criteria related to depression, according to the Beck Depression Inventory. Some criteria used to determine if a blogger belonged in a "depression" category were hopeless, tired, or

had negative views about themselves, the world, or the future as described by Kovacs.

Due to the history of research showing that increased usage of social networking increases the risk of negative mental health, this research analyzes the relationship between the types of blogs that reblog negative images and the types of blogs that reblog positive images. Issues of what constitutes negative and positive blogs and images will be discussed within the materials and methods section of this paper. The hypothesis of this study is that the more negative that a blog is the more likely that the blog user will reblog negative images, while the more positive that a blog is the more likely that the blog user will reblog positive images. It has been noted that lonely adolescents tend to go to online communities for new friends, their online communications are of intimate topics, and users feel no shame about what they share (Novotney 2012). However, if a correlation can be shown that more negative blogs consistently reblog more negative images, the positivity that comes from online social communication may not be as effective as previously thought.

Tumblr has features that are unique to its interface. A user sets up their own Tumblr account, which consists of a profile or blog that they can design themselves, or use pre-designed template. They have control over their biography section, profile picture, and sub-sections of information. Using their Tumblr account they can follow other users who have the same profile setup. When a Tumblr user follows another user, the media that the followed Tumblr user reblogs or creates shows up on that user's Tumblr feed or timeline (a continuous line of images,

videos, quotes, text, etc.). Figure 3 features the Tumblr interface if a new user logged into the website.

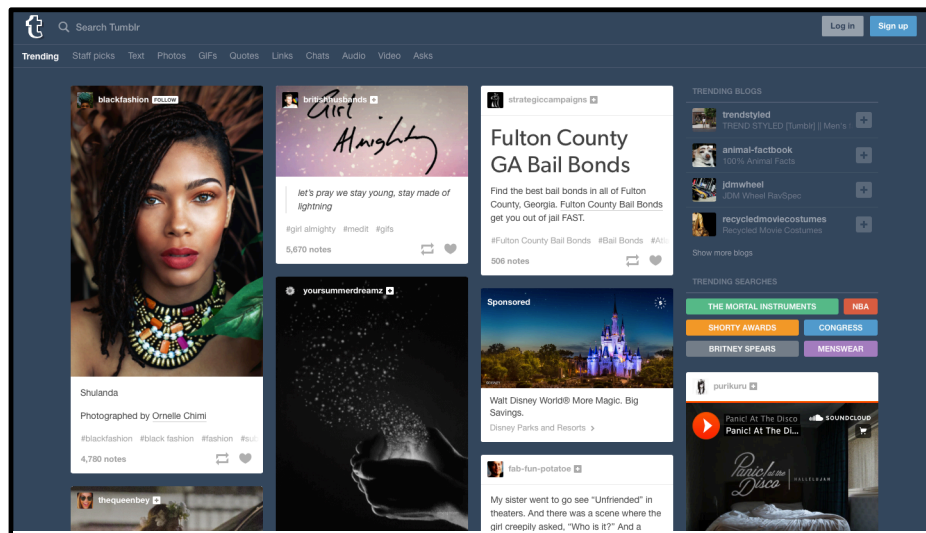


Figure 3 Tumblr's main interface for a new Tumblr user

A user reblogs an image by clicking the reblog button, which means that particular media is posted to their Tumblr blog (demonstrated in Figure 4 by two rotating arrows). A user is also able to like a media post (demonstrated by a heart in Figure 4). The user can also choose to share their post to other social media; however, this is rarely done, because Tumblr users prefer to keep their Tumblr blog private (demonstrated by a box with an arrow zooming out of it in Figure 4). Tumblr users who follow another user will see everything that a user reblogs (unless that user makes that post private), but they cannot see what a user likes. The combination of reblogs, likes, and shares is the total notes that a particular media post has (demonstrated by a total number in Figure 4 of 287).



Figure 4 Example of the total notes, share, reblog, and like options

Materials and Methods

Tumblr is a vast social media site and there are many different “tags” or words that can be searched. This research involved looking at images found under the searchable “tag” *depression*. While there were many other tags that could be searched within the Tumblr sub-community, focusing on more than one section of the community, would have been impractical at this pilot stage, Figure 5, is an example of what would happen if the “tag” *mental illness* were searched.



Figure 5 Example of the tags within the mental-health community that can be searched

Twenty images were collected and for each image information, such as how many notes and what Tumblr user posted the image, were also collected. Each image collected was assigned a rating of one through five based on a rating scale that was created for the images (see below). Four images were collected for each rating number. A rating was also assigned to the Tumblr user who posted the image of one through five, based on a rating scale created for the Tumblr blogs (see below). For each image collected, five Tumblr blogs were randomly selected and

rated by the researcher using the rating scale (described below) created for Tumblr blogs. Tumblr blogs were chosen randomly by copying the total notes associated with each Tumblr image and posting the notes in a random online generator (www.random.org).

After the data was collected for both the images and the blogs, six volunteers (see below) were asked to provide external validation to ensure that the ratings that were given to each image and blog were consistent. On average, the volunteers rated the images and blogs similarly to each other and to the researcher. From the data, the researcher set up the statistics to see if there was a correlation between the five blogs and their corresponding ratings, and the image and their corresponding ratings. These correlations were demonstrated using scatterplots and bar graphs.

Rating Scales:

A one to five rating scale was created for Tumblr post images and Tumblr blogs. This type of rating scale is commonly used for more precise ratings and as a means of looking quantitatively at subjective information (Wuensch 2009). An image that has a rating of one consists of a post that is uplifting, positive, happy, colorful, bright, and encourages the viewer. An image that has a rating of five consists of a post that is negative and features suicidal ideation, self-harm, or death. Scores of two and four are a mixture of one and three and three and five. A score of three consists of a mixture of two and four or is a neutral image. Figure 5 demonstrates the rating scale for posted images.

Rating for Posts

- 1) A score of one is a post that is uplifting, positive, happy, colorful, bright, and encourages the viewer.
- 2) A score of two is a post that is mostly positive, there may be some reference to negativity, but the viewer will most likely be encouraged.
- 3) A score of three is a post that is both uplifting and negative or is neutral. It could encourage the viewer, but it could also discourage the viewer or just doesn't really relay an emotion.
- 4) A score of four is a post that is mostly melancholy, dull, sad, with a negative outlook on life. The viewer will be discouraged.
- 5) A score of five is a post that is negative and features suicidal ideation, self-harm, or death.

Figure 6 Rating scale for posts

Similarly, a blog that has a rating of one consists of uplifting photos, texts, videos, etc. There is extremely little or no negativity presented. Suicidal ideation and/or self-harm is not present. The majority of anonymous "asks" are positive and very little or no negative anonymous "asks" are visible. A blog that has a rating of five consists of negative photos, texts, videos, etc. There is extremely little or no positivity presented. Suicidal ideation and/or self-harm is present for a large portion of the posts. The majority of anonymous "asks" are negative and very little or no positive anonymous "asks" are visible. Scores of two and four are a mixture of one and three and three and five. A score of three is a mixture of two and four or is a neutral blog. Figure 7 illustrates

Ratings for Blogs

- 1) A score of one is a blog that is mostly positive and features uplifting photos, texts, videos, etc. There is extremely little or no negativity presented. Suicidal Ideation and/or self-harm is not present. The majority of anonymous "asks" are positive and very little or no negative anonymous "asks" are visible.
- 2) A score of two is a blog that is mostly uplifting with positive photos, texts, videos, etc. There may be occasional negativity presented. Suicidal Ideation and/or self-harm is not present. The majority of anonymous "asks" are positive and only occasional negative anonymous "asks" are visible.
- 3) A score of three is a blog that has equal parts of uplifting posts and negative posts. Suicidal Ideation and/or self-harm is not present. The number of anonymous "asks" are equal parts positive and negative.
- 4) A score of four is a blog that is mostly negative and features melancholy photos, texts, videos, etc. There is extremely little or no positivity presented. Suicidal Ideation and/or self-harm is occasionally presented or not presented. The majority of anonymous "asks" are negative and very little or no positive anonymous "asks" are visible.
- 5) A score of one is a blog that is mostly negative and features melancholy photos, texts, videos, etc. There is extremely little or no positivity presented. Suicidal Ideation and/or self-harm is present for a large portion of the posts. The majority of anonymous "asks" are negative and very little or no positive anonymous "asks" are visible.

Figure 7 Rating scale for Tumblr blogs

the blog scale.

Rating Validity

To test the external validity of the image-rating scale and blog-rating scale, six volunteers were asked to rate ten images using the image-rating scale. The volunteers were asked to rate ten blogs that featured 20 images each using the blog rating scale. If each volunteer consistently rated an image or blog within one number of the original rating given by the researcher, the image or blog was kept. If an image or blog was rated more than one numerical value away from the original rating assigned by the researcher by three or more volunteers the image or blog was discarded and replaced.

Volunteers were recruited by asking individuals whom the researcher knew in an academic and personal setting. Six volunteers participated in the external validation. The volunteers ranged in age from 21 to 43, with educational backgrounds from high school diploma to college graduate, they represented different socioeconomic backgrounds, and live in different areas of North Carolina. Figure 8 is a chart featuring the demographics of the six volunteers who participated in the external validity.

	Age	Education	Salary
Volunteer 1	23	College Graduate	11,000 a yr.
Volunteer 2	22	College Graduate	15,000 a yr.
Volunteer 3	43	High School Graduate	50,000 a yr.
Volunteer 4	38	High School Graduate	50,000 a yr.
Volunteer 5	21	High School Graduate	No Occupation
Volunteer 6	22	High School Graduate	10,000

Figure 8 Volunteer Demographics

Figure 9 features the inter-rate reliability for ten images tested by the six volunteers.

	Image 1	Image 2	Image 3	Image 4	Image 5	Image 6	Image 7	Image 8	Image 9	Image 10
Volunteer 1	2	1	2	2	4	4	2	5	4	1
Volunteer 2	2	2	3	4	5	4	2	5	4	3
Volunteer 3	2	1	4	3	4	4	2	4	3	2
Volunteer 4	2	1	4	3	5	4	1	5	4	3
Volunteer 5	2	4	1	1	1	1	5	4	2	1
Volunteer 6	5	5	2	2	2	2	5	4	4	3

Figure 9 Inter-rater reliability for images

Figure 10 features the inter-rater reliability for ten blogs tested by the six volunteers.

	Blog 1	Blog 2	Blog 3	Blog 4	Blog 5	Blog 6	Blog 7	Blog 8	Blog 9	Blog 10
Volunteer 1	4	2	3	2	1	3	3	2	3	1
Volunteer 2	1	3	4	3	4	2	4	4	3	4
Volunteer 3	5	3	4	3	1	4	3	3	3	1
Volunteer 4	2	3	1	5	4	3	3	5	4	5
Volunteer 5	1	4	2	4	4	1	5	5	3	3
Volunteer 6	1	2	3	4	4	2	3	5	2	5

Figure 10 Inter-rater reliability for blogs

Image Selection:

The word *depression* was searched, which is a searchable term or “tag” in Tumblr that users have assigned their posts. Four images were chosen for each score rating of one through five. Information, such as who posted the image first, how many notes (the amount of reblogs and “likes”) a post has, was collected, and from the total notes six users’ Tumblr blogs, including the original Tumblr user who posted the image, were chosen at random for evaluation of their blogs based on the Tumblr blog rating scale. In total, 20 images and 120 blogs were analyzed. Figure 11 features an example of an image that is rated one and Figure 12 represents an image that was rated as a five.

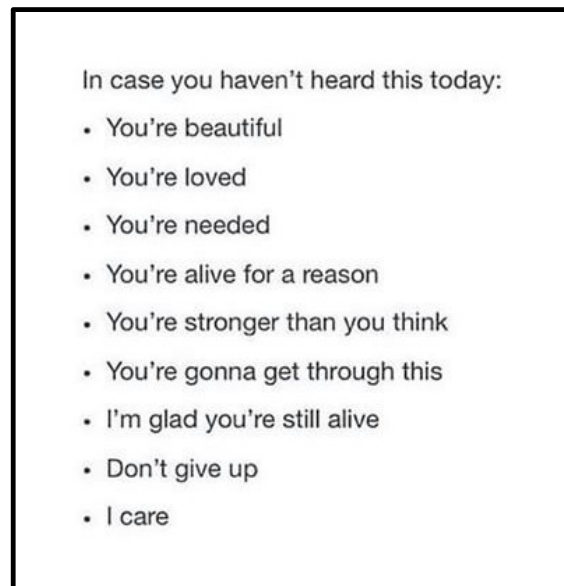


Figure 11 Image given a rating of one

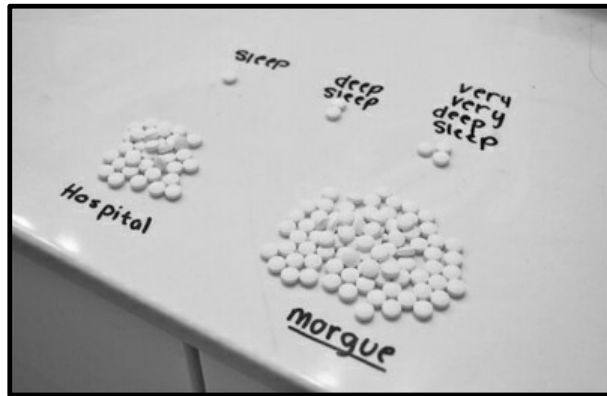


Figure 12 Image given a rating of five

Blog Selection

The five blogs that were chosen at random using a random online generator were given a rating based on their content of one through five. From each of these blogs, five random images were chosen and rated with the one through five image rating scale. From the collective scores of images, and the blogs associated with each image, the blogs and images were examined to determine if there was a correlation between images that rated more negatively on the image rating scale and blogs that rated more negatively on the blog-rating scale, and conversely between images that rated more positively on the image-rating scale and blogs that rated more positively on the blog-rating scale.

Representation of Images and Blogs

Representation of the images and blog scores were graphed together to show the correlation between positive images and positive blogs and negative images and negative blogs. This representation was created with the vertical axis representing the image and blog rating and the horizontal axis representing the six blogs or images that were randomly chosen. An average of all the data collected for each

image and its rating was graphed using bars and an average of all the data collected for each blog and its rating was graphed using a scatterplot line (see Figure 13).

Statistics:

The numeric results were analyzed by using online analytic software entitled VassarStats. A .05 alpha level was chosen to analyze the level of significance for the data. Two independent means (one for image scores and one for blog scores) were used to run an independent t-test to assess for a statistically significant correlation between image scores and blog scores. The .05 level of significance was not found initially for these results, and additional analyses at other levels of significance, including .10 and .20, were also examined.

Results:

While there is a correlation between image scores ($\mu = 3.1976$, $SD = 1.06$) and blog scores ($\mu = 3.014$, $SD = .754$) the score was not statistically significant in each case to the standard alpha of .05. However, in Figure 13, which features all scores combined, there is a positive correlation between image score (represented by the

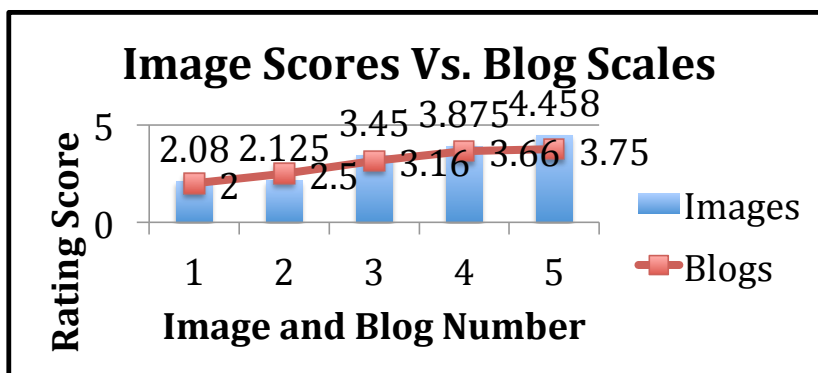


Figure 13 Image Score versus blog score

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nted by the plotted line).

The hypothesis of this paper was that there would be a statistically significant correlation between negative Tumblr blogs and those who reblog negative images and positive Tumblr blogs and those who reblog positive images. From the analysis of the data from this research there is a correlation between images that are rated more negatively and blogs that are rated more negatively, and the inverse is also true. The more negatively a blog is rated, the more likely that that blog will include negatively rated images, while positively-rated blogs are more likely to include positively-rated images. Blogs that are more neutral or have a mix of positive and negatives images are more likely to include images that are rated neutrally as well.

This correlation is noticeable when images that have received a particular rating are compared to blogs that have received the same rating. The rated image resembles many of the images that are in one blog. Figure 14 is an example of an image that is rated one.

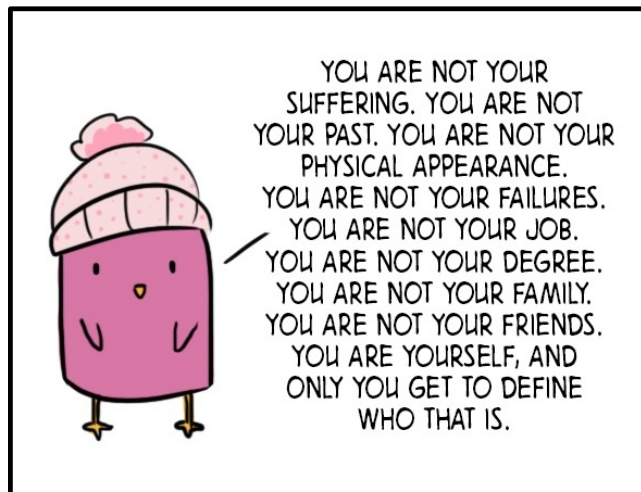


Figure 14 Image rated one

Figure 15 is a collection of four images taken from a blog that was given a rating of one.



Figure 15 Four images taken from a blog rated one

The two examples above both feature ideas of positivity and have a focus on happiness. Figure 16 is an example of an image that was given a rating of three.

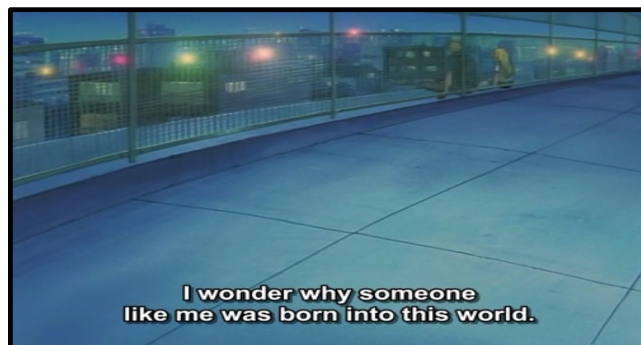


Figure 16 Image rated three

Figure 17 is a collection of four images taken from a blog that was given a rating of three.

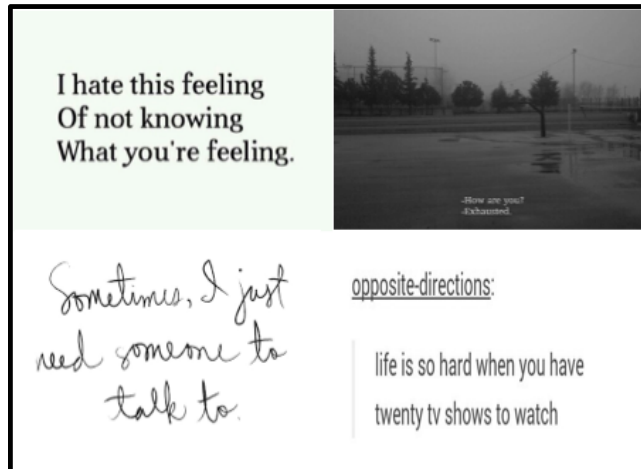


Figure 17 Four images taken from a blog rated three

The two examples above both feature ideas of that could be seen as positive or happy depending on the individual viewing them. Figure 18 is an example of an image that was given a rating of five.

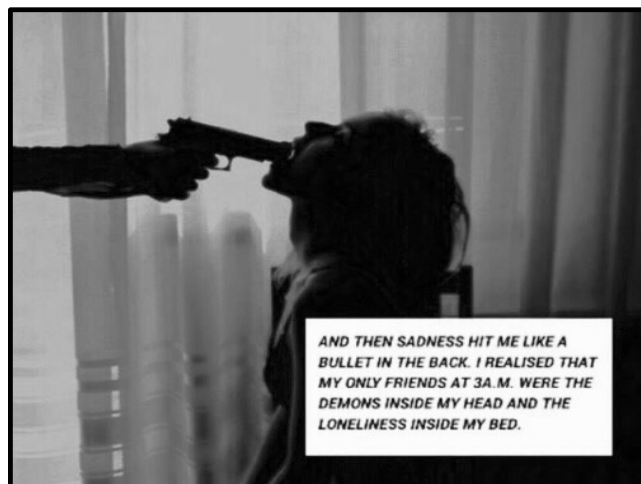


Figure 18 Image rated five

Figure 19 is a collection of four images taken from a blog that was given a rating of five.



Figure 19 Four images taken from a blog rated five

The two examples above both feature ideas that are negative and feature ideas of self-harm or suicidal ideations. The qualitative correlation between similarly rated images and blogs further demonstrates that the more negative and image is the more likely that the image will be reblogged by a similarly-rated blog and the inverse is also true for positive images.

The total notes of 20 images were collected to analyze which type of image (one through five) was most reblogged by Tumblr users. Of the twenty images collected there were 108, 012 notes. Figure 20 demonstrates the percentage of the notes broken down into the ratings one through five.

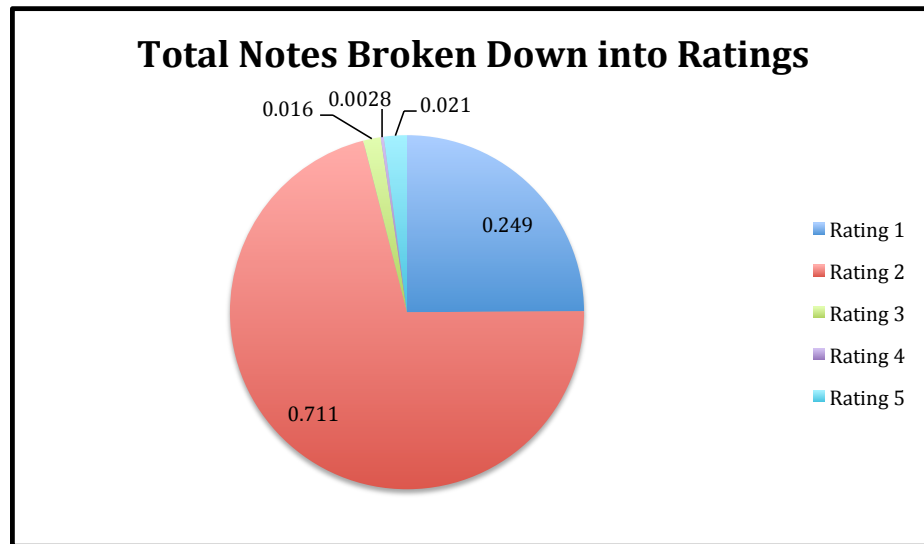


Figure 20 Total notes broken down into ratings

From the notes collected the majority of them (71.1 %) were collected from images rated two. One image that was rated two had 76,797 total notes. Images rated one were the next most likely to be reblogged with 24.9% of the notes. Two images rated one had total notes of 20,354 and 6,015, respectively. While the more negative images had a significant amount of notes for each image, the highest number of total notes for a more negative image was 2, 076. These lower amounts of total notes demonstrate why more positive images have a higher percentage of total

notes compared to more negative images. Figure 21 features a chart with the exact notes for each image and their corresponding percentage rates.

	Total Notes	Total Percentage
Rating of 1	26,889	.249
Rating of 2	76,845	.711
Rating of 3	1,734	.016
Rating of 4	299	.0028
Rating of 5	2,245	.021

Figure 21 Total notes breakdown and percentages per rating

This data shows that the majority of Tumblr users within the Tumblr mental-health community or beyond that community are reblogging more positive images, however, this data also shows that more than 2,500 Tumblr users are reblogging more negative images.

Discussion:

The results of this research suggest that Tumblr users who reblog negatively-related images tend to have blogs that are rated more negatively. While these findings may seem obvious, there has been no research on this topic. This type of behavior cannot be shown to affect the mental health of the Tumblr user negatively, but questions can be brought up about the effects on mental health if an individual is participating in a continuous cycle of reblogging negative images. Because individuals in virtual communities such as Tumblr tend to follow other users who have similar viewpoints as themselves, they must constantly see negative images show up in their timeline (Kuss 2011). This means that Tumblr users are constantly

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perpetuating and reinforcing negative behavior potentially in a spiraling-down fashion.

While those outside the Tumblr mental health community may see this behavior as spiraling down, Tumblr users self-identify as participating in a community and receiving support from other users. There may be some truth to this statement, according to Kuss (2012), genuine emotional support and well-being can be provided by online social networks and these include advice, information, and companionship. If a user consistently uses a social networking site, a person's psychological well-being can be strongly influenced (Turkel 2004). Many Tumblr users state on their personal blogs that they do not have support in their "real-life" communities, and that is why they turned to an online community. It is not uncommon for adolescents (the majority of Tumblr users) to seek out help from online virtual communities (Duke-Young et al. 2007). So there may be some benefits to online support, but when that support is not from licensed professionals or online approved tools, this help may not be the support that Tumblr users should seek out or that is most helpful (Grohl 1998).

However, Durkheim has demonstrated that when individuals are not connected with societal or community standards and morals they feel normlessness and retreat to a community that shares their morals and experiences (Gerber, Macionis (2010). The feelings of Anomie and consequently normlessness are accompanied by feelings of guilt, shame, and embarrassment and can result in the individual feeling lost and depressed (Gerber, Macionis 2010). While these feelings may be lessened with the inclusion into a sub-community, the individuals may still

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feel negative feelings when they have to engage with individuals outside of their chosen community (Gerber, Macionis 2010).

There have been a few studies conducted using social media, such as Facebook and Twitter, and how it relates to mental health: researchers have even gone as far as labeling some depression as “Facebook Depression” (Pelt 2015). However, there has been little research on Tumblr. This posed a challenge, such as finding research models to pull from to help create a strong foundation from which to start this research. Tumblr itself also posed its own challenges, because there are so many different facets to the site, the research had to be focused to something narrower, such as image posts and depression. As of March 2015, the site had over 86.9 billion posts created each day, (Press 2015).

Narrowing down the question brought up other challenges such as would different types of media posts, e.g., writing or videos, affect the Tumblr user more, and would it produce different ratings from both the researcher and the volunteers participating in external validation? People who suffer from negative mental health have changes from day to day and week to week. Tumblr blogs that are rated negatively at the time of the research could change in the upcoming weeks, due to a changes in the Tumblr user’s mental health changes (Dotings 2010). While this does not directly pose a limitation to the research being conducted, because it relies on Tumblr users posting and reblogging behavior in the present moment, if researchers were going to go back and study Tumblr users for long periods of time, the data could change.

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Due to the graphic nature of some of the images collected via the depression tag, the possibility that these posts could invoke self-harm and suicidal ideation is also of great concern. Some of these images almost seem to romanticize self-harm and suicidal ideation. Figure twenty-two demonstrates an image found under the *self-harm* tag. This image features a Tumblr user who has harmed themselves enough to cause intense bruises, however, the image is also tagged with words like *grunge*



and *beautiful*.

Frequently, images are tagged with these words, because users within this community have self-identified as believing this self-harming behavior is beautiful or they are trying to possess a certain aesthetic, such as, the grunge aesthetic. If Tumblr users who are in a more vulnerable state due to what they are experiencing see these images, could they lean more towards self-harm or suicidal ideation to alleviate what they are experiencing? Does frequent sharing of romanticized images

Figure 22 Image of self-harm being romanticized

and “support” from their community encourage Tumblr users to engage in self-harm and suicidal ideation?

The majority of the images and blogs collected and rated by the researcher received the same or close to the same given rating by the six volunteers who participated in the external validation. However, there were some volunteers who gave scores that were not close to the original rating. Volunteers rated some images more negatively than rated by the researcher. While conducting the external validation a volunteer stated that he may have rated some images negatively when others may have rated them positively, because the negative images that he had looked at had put him in a morose state. This may provide some explanation to some images ratings being more negative than others. Because some images were rated more negative than other, this resulted in the images having higher overall ratings than the Tumblr blogs received. In the future, waiting a certain time limit between each image and blog may help alleviate some of the issues related with emotions when subjects need to be most subjective.

The analysis of the data indicated that there no statistically significant findings, however, this was probably due in part to the limited number of data collected. As a pilot study, 20 images and 120 blogs were collected, but, the statistical software indicated that over 1,000 images and over 750 Tumblr blogs would be needed in order to provide a positive statistical correlation at the standard .05 alpha. In the future, a much larger data sample would need to be collected to ensure that the results achieved significance.

As social media becomes more integrated into the everyday lives of individuals, and with the growing trends of mental health issues presented in young adults, future therapy techniques and/or online tools should become a priority to help individuals who are suffering from mental health issues and expressing those issues via online virtual communities. With the outcry created by the death of Tallulah Wilson there have been some steps taken by Tumblr to aid those with mental health issues, who may use the site. Figure 23 demonstrates what Tumblr displays if an individual searches a tag like *depression*, *suicide*, *self-harm*, etc.

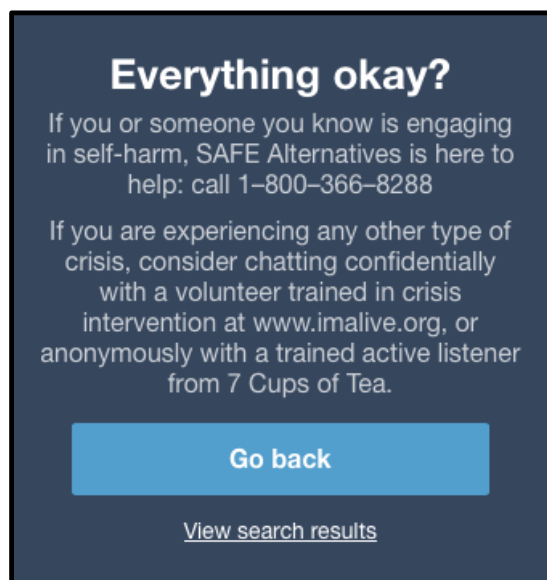


Figure 23 Tumblr display for tags searched related to negative mental health

However, Tumblr users can easily bypass this helpful screen by selecting the “View search results.” Given the way many individuals are in the current technological society, the extra work to pursue the directions in this help screen is

not worth the effort, especially given that many of the Tumblr users receive constant positive reinforcement for their more negative image posts when their followers send them supportive messages and reblog, like, or share their images or personal posts.

Future Direction

In the future, when further research is conducted with this topic, it may be important not only to analyze data quantitatively, but also to be able to contact Tumblr users directly if they consent to questions and further analysis. Questions that could be posed to assess their own feelings about the usage of their Tumblr and its [effects](#) on their mental health and how the Tumblr users feel about their position in the online community and about others in the community.

More extensive research on this issue will help researchers know and predict how Tumblr affects individuals. Therapy options for individuals affected negatively by Tumblr's mental-health community can be researched to understand what could best help individuals who participate in Tumblr or other similar online communities centered on mental-health issues. Given the trends of reliance on social media use, Tumblr's mental health, and its effects on mental health, will only continue to be an issue. This issue has important implications for modern society and should no longer be unexplored by researchers.

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