Title
Beyond an OSN Post: Looking at Emotional Valence and Request of Support/Information

Author
Aguilar, Megan E.

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BEYOND AN OSN POST: LOOKING AT EMOTIONAL VALENCE AND REQUEST OF SUPPORT/INFORMATION

By

Megan Elise Aguilar

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APPROVED

Dr. Megan Robbins
Department of Psychology

Dr. Kate Sweeny
Department of Psychology

Dr. Richard Cardullo, Howard H Hays Jr. Chair
University Honors

Abstract

Rheumatoid arthritis is a chronic autoimmune disease that does not have a cure. Therefore, it is important for patients to receive support which would allow them to ask questions and express their feelings. This study aimed to examine online social networks for patients with rheumatoid arthritis to better understand the emotional valence of their initial posts, whether they requested or offered support, and any association between posts with negative emotional valence and requesting support/information. Nine hundred and eighty-six initial posts from a rheumatoid arthritis online social network were coded as either positive, negative, neutral, or mixed. In addition, the 986 initial posts were coded as either requesting support/information, offering support/information, neither requesting nor offering support/information, or both requesting and offering support/information. Negative was the most common emotional valence in the initial posts. There was also a small effect between initial posts that had a negative emotional valence and requested support/information, and initial posts that had a negative emotional valence but did not request support/information. This study indicates the need for additional information and support to be provided to patients with rheumatoid arthritis, so they can have a better experience and an easier way to cope with their illness.

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Chronic pain affects 20.4% of the U.S. adult population (Dahlhamer et al., 2018). It changes a variety of aspects in life including relationships, work, and leisure (Kristiansen et al., 2012). In order to learn more about how individuals with chronic pain, specifically rheumatoid arthritis, receive support, we are examining the emotional valence of initial posts on an online social network. This information will provide an understanding of the experiences rheumatoid arthritis patients are having, how they are coping with their illness, and indicate whether there is a need for additional information or support from healthcare professionals.

Introduction

Many patients suffering from illnesses use different resources as a way to discuss aspects of their illnesses. The majority of these resources include physicians, family, in person support groups, and online social networks (Davison & Pennebaker, 2000; Mehta & Atreja, 2015; Poh et. al, 2017). These different sources of support are beneficial for patients because it allows them to ask questions and receive comfort during the process of understanding their illness. One of the main goals for a patient coping with an illness is for the patient to have a trusted relationship with someone and receive the support they deserve and need (Mäkeläinen et al., 2009). It becomes a greater importance when the illness is something that does not have a cure and can overall affect someone's quality of life, such as RA (Krol et al., 1993). A person with an illness like RA needs support as a way to reduce stress from the news of having an incurable disease (Krol et al., 1993).

Rheumatoid Arthritis

Rheumatoid arthritis (RA) is defined as "a chronic progressive autoimmune disease characterized by inflammation of synovial joints, causing immense pain and joint stiffness"

(Barker & Puckett, 2010, as cited in Poh et. al, 2017, p. 374). Throughout the duration of their illness, patients may also experience a decline in physical functioning, psychological challenges, and emotional challenges (Kristiansen et al., 2012; Iaquinta & Larrabee, 2004). Instances of declined physical functioning can affect everyday tasks and activities a patient enjoys. A patient may begin to feel pain in a certain area of their body including their fingers, knuckles, or joints which can affect everyday tasks such as brushing their teeth, putting on a shirt, or opening a canned food item (Poh et. al, 2017). Additionally, activities that a patient enjoyed can no longer be done because of the physical pain they endure daily (Krol et al., 1993). Examples of activities include exercising, dancing, and social events. Aside from physical challenges, a patient can also have psychological and emotional challenges as a result of their illness. Negative feelings such as anger, frustration, depression, and fear all play a part in how a patient views their illness and how they cope with it (Iaquinta & Larrabee, 2004). These different challenges affect the overall quality of life that a patient may have.

Although the symptoms of pain, inflammation of joints, and swelling of joints are the most common symptoms for patients with RA, there are also other symptoms as well (Macfarlane et al., 2020). These additional symptoms include feeling tired, having significant weight loss, loss of appetite, and high temperature (Macfarlane et al., 2020). If these symptoms are recognized early on, there is a better chance that treatment can help and positively affect the person’s condition (De Cock et al., 2014).

Although there is no cure for RA, there are treatment plans that can be discussed with a doctor that can help with reducing disease progression, inflammation and pain (Macfarlane et al., 2020). Even though these treatment plans may lead to a decrease of symptoms such as remission, it does not guarantee that the patient will not relapse and have an increase of symptoms such as a flare (Haugli et al., 2004). Because of the nature of the illness, patients with RA will most likely have to undergo treatment for the rest of their life (Haugli et al., 2004). Different treatment options include non-steroidal inflammatory drugs, disease modifying anti-rheumatic drugs, steroids, pain killers, and in severe cases, surgery may be recommended (Haugli et al., 2004). Other treatment options that are not medically based include participating in gentle exercise, applying heat or cold, reducing stress, and increasing social support (Mayo Clinic, 2019). Each treatment option is specific to the patient and their unique needs.

Rheumatoid arthritis is a very well-known illness, and doctors are able to treat patients to the best of their ability. Although patients typically feel that they receive enough information about RA from nurses and doctors, they feel a lack of emotional support that is necessary to cope (Mäkeläinen et al., 2009). Patients are left comprehending their new illness, without the emotional support to help them cope with it. Support is very important for someone with any illness because with support, patients are able to cope easier with their illness and it benefits their health and well-being. Without support, thoughts of uncertainty may arise which can lead to anxiety or depression (Krol et al., 1993). In order to discuss aspects of their illness, many patients use different resources including physicians, family, in person support groups, and online social networks (Davison & Pennebaker, 2000; Mehta & Atreja, 2015; Poh et. al, 2017).

Support from Medical Professionals

An important source of support for patients is usually the physician who is treating the patient. The physician provides the diagnosis and discusses a plan of action with the patient (DiMatteo, 1998). This patient-doctor relationship is critical and necessary in order to gain trust and learn how to cope with a new diagnosis. According to Poh and colleagues (2017), patients value the relationship with their doctor because it helps them feel confident in the treatment they are receiving. Physicians are able to "empower patients by providing choices, being responsive to patient preferences, and understanding, listening, and encouraging patients to ask questions" (Gensichen et al., 2009, p. 2). This study also suggests that support is an important part of the doctor-patient relationship. It is critical that patients receive support from their medical team in order for them to trust their treatment plan and feel comfortable asking questions (Ahlmén et al., 2005; Kyngäs, 2003). The patient-doctor relationship is important because the doctor's main goal is for their patient to receive the treatment they need in order to overcome their illness.

Support from Family

In addition to the need of a strong doctor-patient relationship, family support for patients with an illness is also extremely important (Poh et. al, 2017). Family can be a valuable resource if the patient feels that they will receive the support they need. According to Harris and colleagues (2009), cancer patients list their family as their primary source of support. Family members may be easily accessible to patients and may be able to be present along the journey of their illness. They are able to recognize symptoms as problematic, help with any obligations that the patient is responsible for, and ensure that medication is taken properly (Cooper & Gilbert, 2017; Price & Walker 2015). Moreover, family can provide the support that is necessary for a patient to have a better experience and health outcome (Cooper & Gilbert, 2017).

In-person Support Groups

Additionally, in-person support groups are another resource for patients to receive the support necessary to cope with their illness (Polomano et al., 2007). In-person support groups are used as a way for people with the same illness to meet and talk about what is going on in their lives and their illness. These support groups are used as a resource to learn how to cope with illnesses and help patients understand that there are other people going through the same thing. According to Davison and Pennebaker (2000), the stories told during in-person support groups provide insight into shared experiences. The attendees understand one another and share the same experiences as one another. This unique bond may bring them together to share personal stories about their suffering.

Moreover, patients who participate in support groups have better health benefits than nonparticipating patients (Davison & Pennebaker, 2000). For example, Lorig and colleagues (1993) found that there was a decrease in pain for patients with rheumatoid arthritis when they participated in peer-facilitated groups. Additionally, McCarron (2015) found that patients with rheumatoid arthritis who attended in-person support groups, had improved emotional health, learned stress reducing strategies, and received understanding and support from other attendees. In a study looking at young allergy patients and why they use support groups, Roberts (2018) found that support groups were able to answer any unanswered questions the patients had after their doctor's visit. According to Roberts (2018), patients who participated in the support groups also had an improvement in their self-esteem and confidence. Having access to this important resource of in person support groups gives patients the opportunity to ask questions and the ability to relate to those with similar stories (McCarron, 2015; Roberts, 2018).

Online Social Networks

Finally, online social networks (OSNs) are a relatively accessible and easy way for patients to connect with other people (Mehta & Atreja, 2015). OSNs and online support groups are an online community where participants help and support each other and discuss their lives with their diagnosis (Mehta & Atreja, 2015, Wright et al., 2020). OSNs provide the opportunity to upload videos, pictures, or other multimedia files (Mehta & Atreja, 2015). These various media outlets allow users to ask questions and receive information and support. Patients can use sites such as Facebook, Reddit, or specific sites dedicated to patients with a certain illness. Unlike Google, these networks are directly for patients or loved ones with a certain illness, where they are able to gather a variety of information of others going through the same illness. This common goal is important because it allows a better understanding of how serious and how important it is for people to be able to receive and give help on an open platform.

According to Mehta & Atreja (2015), OSNs serve two purposes: emotional support and information-seeking. These networks are an easy and accessible way for individuals to seek out information or support while staying anonymous by creating a username. By seeking out information, patients are asking questions about the illness and are learning about different ways to identify or live with the illness. This online community is an ideal way to communicate with others while giving patients privacy and a more comfortable way to approach their current situation (Mehta & Atreja, 2015). Users trust the various sites and feel comfortable asking questions to one another. Having easy access to these websites that provide valuable information makes it beneficial for patients to visit and communicate their problems with others going through the same thing (Kingod et al., 2017).

It has become easier to create virtual communities for patients due to the popularity of the internet and the multiple ways to access it (Mehta & Atreja, 2015). These online communities serve as a way for patients to feel a sense of community and interact with others who are going through the same illness as they are. Patients with chronic pain who have to undergo life changing events with their illness use OSNs as a way to free themselves from everyday negative experiences (Polomano et al., 2007). Furthermore, these patients are given access to many social networks where they are able to receive the social support they need. According to Mesch

(2012), the internet is used as an additional form of communication where information can also be found. These social networks are important and necessary for patients to have access to, because they serve as a platform to ask questions and receive answers which can be important for patients who are uncomfortable speaking directly to someone. In conclusion, various resources for patients to receive help with the process of coping and understanding their illness include doctors, family, in person support groups, and online social networks (Davison & Pennebaker, 2000; Mehta & Atreja, 2015; Poh et. al, 2017).

Online Social Networks for Chronic Pain

Although chronic pain and the use of OSNs have been researched, there is not a lot of information about specific chronic pain subtypes and their use of OSNs. Subtypes of chronic pain include but are not limited to rheumatoid arthritis, fibromyalgia, endometriosis, and gout. For example, rheumatoid arthritis can physically, psychologically, and socially affect a person, so it is important for patients to be able to learn how to cope with their illness in order to increase and maintain their quality of life and well-being (Krol et al., 1993).

Based on a review of the literature, it appears that examining OSNs for rheumatoid arthritis is rare (Wright et al., 2020). However, OSNs for psoriasis have found that patients with psoriasis used OSNs due to convenience, availability of resources, access to good advice, and a way to discuss personal issues without embarrassment (Idriss, Kvedar, & Watson, 2009). Additionally, online social network users mostly posted messages on the site and searched for information (Idriss, Kvedar, & Watson, 2009). According to Sendra & Farré (2020), patients with chronic pain such as endometriosis and fibromyalgia use OSNs like Instagram to inform others of their illness and give visual representations of their illness. Given that OSNs have been effective for patients with psoriasis, endometriosis, and fibromyalgia, it would be beneficial to learn more about patients with RA and their viewpoint of their illness.

Current Study

Determining emotional valence of posts made by patients with RA will help us understand the negative or positive experience a patient is having with RA and how they are coping with their illness. If the emotional valence of an initial post is negative, it would mean the patient is not coping well with their illness (Cho, 2017). If the emotional valence is positive, it would mean something is working for the patient and they are coping well (Parker et al., 1995; Polomano et al., 2007). However, it may also be that patients just want someone to talk to and someone who is willing and available to listen which may be indicative of a neutral (neither negative nor positive) or mixed (both negative and positive) post. Research that explores OSNs including emotional valence will inform physicians and healthcare professionals about the ways in which these support networks are being utilized. The understanding of a patient's experience will help bring awareness to the importance and need for these websites for patients and any additional help they may need (Newman et al., 2011).

Due to the physical, psychological, and emotional challenges that a person with RA may face, the use of OSNs allow for a place where patients can discuss both positive and negative aspects about their illness. Although there may be patients discussing positive experiences with RA, it may be more unlikely than discussing negative experiences. More negative experiences may be discussed due to the decline in physical functioning, psychological challenges, and emotional challenges that patients with RA often go through (Kristiansen et al., 2012; Iaquinta & Larrabee, 2004). Additionally, posts may be more negative because patients may want their health care professionals to provide more information, give reassurance, and provide additional ways to seek support and manage symptoms (Poh et. al, 2017).

Therefore, I hypothesize that 70% of the emotional valence of initial posts on this online social network will be negative. With the information of the emotional valence of the initial posts, we can learn what type of experience a patient with RA is having. It can be helpful to know this information because if the majority of the posts are negative, it would show that there is something wrong and the patient may need help or additional support and/or information. Consequently, an exploratory hypothesis was developed: There will be a small association between posts with a negative emotional valence and requesting support/information. If patients are having negative experiences and turning to OSNs, then clinical staff may need to find different ways to relay information, answer questions, or ensure that patients are as informed as possible. Additionally, healthcare professionals may need to discuss RA in a different manner, provide different resources, and provide credible places for patients to turn to if they have additional questions. This overall understanding would allow us to recognize what is needed to cope more effectively with rheumatoid arthritis.

Method

Data were retrieved from an RA OSN (http://www.reddit.com/r/rheumatoid). The IRB of the University of California, Riverside allowed an exception from review due to the public availability of the data from the RA OSN. There is no demographic data from the participants because contact was not made with any of the users from the OSN. This data was also used in a previous study that found evidence of how pain disclosure unfolds in everyday naturally occurring social contexts (Wright et al., 2020).

Procedure

Public data was acquired from the OSN using jsoup, a Java-based code library for HTML parsing (Hedley, 2017). The data retrieved included the individual posts with the username, post time, and position in the thread. The structure of the OSN is as follows: users are able to post a statement or question to begin a thread, receive comments or post replies on a user's thread, and reply to any of the comments within a thread. The RA sample contained data from March 18, 2012 to September 12, 2016. This includes all data from the first written post until the date the data were retrieved for a previous study. A total of 1,122 posts were retrieved, but 136 posts were excluded from analyses due to broken links, links without any text from the original user, and titles without an initial post. Nine hundred and eighty-six posts were coded for this study.

Measures

Emotional Valence and Support/Information were examined from the OSN.

Emotional Valence

The four coding categories used for emotional valence were positive, negative, neutral, and mixed. Each coding category was mutually exclusive which means only one of the four coding categories was coded for each initial post. See Table 1 for coding definitions and examples.

Four research assistants coded coding categories as either present (1) or absent (0). The coding team reviewed the definitions for the four coding categories and looked at different examples for each. The coding team then coded a sample subset of 200 posts and kappa was calculated to make sure agreement was acceptable. Any discrepancies between the coding team were discussed and reviewed. The coding team then coded the rest of the posts then kappa was calculated again for the full data set. Overall agreement for emotional valence for all coders was 0.59. When one coder was removed from the analysis, agreement for emotional valence increased to 0.68. As a result, one coder was not included in any further analyses. A total of four posts for emotional valence had no majority rule because each coder coded a different mutually exclusive coding category. In those four cases, the primary investigator served as a tie breaker.

Support/Information

The four coding categories for support/information were requests support or information, offers support or information, neither requests nor offers support or information, and both requests and offers support or information. See Table 2 for coding definitions and examples.

The coding procedure was identical to that of emotional valence. Kappa was calculated for the full data set. Overall agreement for support/information for all coders was 0.82. When one coder was removed from the analysis, agreement for support/information increased to 0.86. As a result, one coder was not included in any further analyses. One post for support/information had no majority rule where each coder coded a different mutually exclusive coding category. In this one case, the primary investigator served as a tie breaker.

Analytic Plan

Emotional Valence

Descriptive statistics were run to analyze the frequency and percentage of initial posts that are negative in comparison to positive, neutral, and mixed.

Support/Information

A chi-square test of independence was used to examine the association between initial posts that had a negative emotional valence and requested support or information.

Results

Emotional Valence

In descending order, the frequency of emotional valence coding categories was negative (n = 448, 45.44%), mixed (n = 313, 31.74%), neutral (n = 162, 16.43%), and positive (n = 63, 6.39%). My hypothesis of 70% of initial posts being negative was incorrect. Instead, the data showed that 45.44% of the initial posts were negative. However, in combination with the mixed category, there was a total of 77.18% (n = 761) of initial posts with any indication of negative emotional valence.

Support/Information

A chi-square test of independence showed that there was a small effect between initial posts that had a negative emotional valence and requested support/information, and initial posts that had a negative emotional valence but did not request support/information, χ^2 (1, N = 986) = 22.064, p = 2.64 e-06 (Table 3 and Figure 1). A small effect was also yielded, φ = 0.17, 95% CI [0.11, 0.23]. These results supported my exploratory hypothesis.

Discussion

It is especially important for patients with rheumatoid arthritis to receive support, ask questions, and express their feelings, because rheumatoid arthritis is a chronic autoimmune disease without a cure. We examined emotional valence and support/information of an OSN to understand naturally occurring conversation of RA. The results showed that the highest coded category was negative, with the lowest coded category as positive. There was also a small effect between initial posts that had a negative emotional valence and requested support/information and initial posts that had a negative emotional valence but did not request support/information. This shows that patients may not be receiving the necessary information in order to understand and cope with their illness. The present study provides evidence that patients are turning to OSNs and posting with a negative emotional valence. It is important to learn the emotional valence of individuals with RA due to the physical, psychological, and emotional effects this condition can have on an individual (Kristiansen et al., 2012; Iaquinta & Larrabee, 2004). The results of this research will allow for those in the clinical field to see ways in which patients need support, whether it be informational or emotional.

The initial posts from the RA OSN included more negative posts than any other category. In combination with the mixed category, there was a much higher percentage of any indication of negativity than neutral and positive posts. Various media outlets such as OSNs give patients the opportunity to seek additional information beyond what healthcare professionals share. Some information patients seek include questions about their course of treatment, unanswered questions after visiting their health care provider, or information about a change in diet or exercise habits (Huh et al., 2013). The information that users request on an OSN provides a better understanding as to why posts with a negative emotional valence were associated with posts that requested support/information. According to Cho (2017), negative emotional disclosure is a sign of others seeking help due to stress from a negative event. Also, negative emotions mainly stem from a negative event occurring in someone's life (Cho, 2017). By going on an OSN and writing a negative valanced post, patients may be indicating that there is something wrong with the treatment they are receiving, they are not coping well with their illness, or that they may be having a bad day. According to Curtis and colleagues (2004), a person with an illness perceives stress from a situation when taking into account the number of coping resources and social support they have. The lack of resources and support leads to a greater amount of stress and an overall negative experience. The negative event that is occurring in their lives may be the reason why they are going onto OSNs to find answers or seek support.

Patients with RA have psychological and emotional challenges which include feelings of anger, frustration, sadness, despair, and helplessness (Poh et al., 2016). These feelings often arise when others in their lives are unable to empathize with their situation, or when they feel as if they have lost independence due to RA (Poh et al., 2016). These reasons are an indication as to why patients may go on an OSN and discuss these negative feelings with others. Patients go to websites such as online social networks and ask for support or for more information because people are going through the same thing they are, people respond positively and are encouraging, and most posts get a rapid response at any time of the day (Newman et al., 2011). Choosing to post online is an option for patients because they receive quick responses where others are sympathetic with them when they post about something that is hard for them to deal with (Newman et al., 2011). This positive aspect of an OSN allows for individuals to express themselves freely and receive any support or information that they request.

In very rare instances, posts with a positive valence were coded. In combination with mixed posts which include any indication of positivity and negativity, there was still a much lower number of posts that were considered positive. This may be because people tend to post positive posts online when they are happy and experiencing something happy (Cho, 2017; Qiu et al., 2012). Due to the small number of positive posts coded, it may indicate that there are not many patients with RA who experience something happy. When they did feel any type of relief or remission, they would express it on their post. However, with everyday activities such as walking barefoot, cleaning the house, and shopping, patients with rheumatoid arthritis showed feelings of grief such as hopelessness and sadness (Ostuland, et al., 2014). In a study conducted by Ostuland and colleagues (2014), when asked to describe their everyday life, patients did not mention anything positive, but instead talked about times of fear, embarrassment, and grief. Without any mention of something positive, it may be an indication that there are more negative experiences throughout the day for individuals with RA, instead of positive experiences.

Additionally, one study found that patients with RA who participated in a stress management group received advice on how to deal with stressors of RA (Parker et al., 1995). The patients in this stress management group reported having a greater understanding of how to manage their pain compared to the attention-control group and standard care control group. This psychological improvement is especially important for patients with chronic illness. Because patients were able to understand their pain better and learn how to cope with it, this may mean that a better quality of life is possible (Parker et al., 1995). This study shows that patients with a greater understanding of how to cope with their pain may have a better quality of life which means there is a more positive outlook of their illness. Because there were not many online posts with a positive emotional valence, it is safe to believe that many patients may not be coping well with their illness and may not be receiving the support they need to learn how to cope with their illness. Furthermore, people typically turn to online social networks to alleviate negative consequences from everyday experiences (Polomano et al., 2007). These everyday struggles that some patients go through lead them to ask questions and seek support online. If a patient does not have many struggles, it may be a reason as to why they are not turning to online social networks. Any positive experiences or any type of relief may not be an indicator as to why patients turn to OSNs.

Strengths and Limitations

There are a few strengths and limitations of the current study. A strength was that the study analyzed 986 initial posts. The data set included a large number of initial posts that covered four years which allowed for an accurate and more precise result of emotional valence.

Second, the OSN allowed for a naturalistic online study where patients were able to freely discuss a topic of their choice. Due to the anonymity of an OSN, patients are able to comfortably ask questions and describe certain aspects of their illness. They are able to choose what they disclose, and what they choose not to share. This naturalistic environment allows us to see what the patients truly want to discuss, instead of it being filtered to what researchers might want to hear.

However, because each post was written with a non-identifiable username, it would have been difficult to contact the patients and ask them additional questions. We were not able to learn more about who they are, their age, their socioeconomic status, or how long they have had RA. Additionally, we were not able to get an understanding of where they live which may contribute to the access to the healthcare they are able to receive. It is also important to know what the health literacy of the patient looks like. Health literacy is defined as the extent to which individuals can obtain, process, and understand basic health information used to make health decisions (Health Resources and Services Administration, 2019). Understanding the health literacy of the patients would have allowed us to see if there is a disconnect in the understanding of their diagnosis and treatment plan. This additional information may have provided a deeper insight of the OSN users so we could get an overall demographic of who is using the OSN.

Future Directions

Future research can look at gathering demographic data for an improved generalization of data. Gathering information from OSN users such as age, socioeconomic status, location, and how long they have been diagnosed with RA would provide a better understanding of the users of the OSN. Additionally, this information would allow researchers to see who is using these sites and whether it is a certain group of people who are needing support and information from these sites.

Future research should also gather more information about the emotions of the patients using the OSNs. It would be beneficial to contact these individuals and have them fill out surveys every day to get a better understanding of their negativity or positivity throughout the day. This would serve as another resource in determining if they are mostly negative or positive throughout the day, and how they feel after posting on an OSN. Do they feel better once posting, or do they continue to feel negative after posting? Information like this can provide a deeper understanding into the emotions of a patient and how they are coping throughout the day, instead of just understanding how they are coping based on an OSN post.

Conclusion

In conclusion, this study examined the emotional valence of initial posts on an online social network. By coding each post and determining if it had a negative, positive, mixed, or neutral emotional valence, we were able to discover that more posts were negative compared to the other categories. By also looking to see if users requested support/information, we were able to find that there was a small effect between initial posts that had a negative emotional valence and requested support/information and initial posts that had a negative emotional valence but did not request support/information. This allowed for an understanding of the experience patients with RA are having, how they may be coping with their illness, and it indicated that there is a need for additional information or support from healthcare professionals. The results can also allow us to find ways to fulfill the information gaps that patients with RA may have. Results from this study will provide insight for healthcare professionals on the importance of making sure a patient is given information in a way they can understand, answering all questions from patients, recognizing what knowledge patients need to cope more effectively with rheumatoid arthritis, and providing different and credible resources for them to turn to if necessary.

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Table 1

Emotional Valence Definitions and Examples

Coding Category	Definition	Example
Positive	Any indication of positivity including positive topics, positive reframing of situations, or any indication of happiness, hopefulness, etc.	“You're all so wonderful and supportive!! I hope you all find remission and stay there :) and realistically, may the flares be mild and the meds effective!! Thank you for being so positive and there for all the random questions!!!”
Negative	Any indication of negativity including negative topics, or any indication that the user was sad, angry, worried, etc.	“My shoulders ache. My wrists ache. Curling my fingers around the steering wheel aches. Gripping the steering wheel aches. Taking a shower aches. But driving. Oh my god. Sorry. I'm in flare up mode and just needed to whine. :(thanks for listening.”
Neutral	No indication of being positive or negative and it is written in a matter-of-fact way.	“Has anyone else made the shift from Enbrel to Humira and been successful? Has anyone ever been able to go back to Enbrel after taking a "break" with a different med? Any experiences with Actemra you care to share?”
Mixed	A combination of both positive and negative tones.	“Every step with RA seems to be overwhelming, even the good ones (first day without pain). I'm scared, excited and sore (medrol injection started wearing off 2 days ago) and finding concentrating on work to be impossible today (doesn't help that it's the day after methotrexate dose so I'm kinda fuzzy headed too). Aaaaaaaaaaa!”

Note. The sample posts were copied verbatim from the OSN.

Table 2

Support/Information Definitions and Examples

Coding Category	Definition	Example
Requests Support or Information	Any explicit or implicit request of support, information, comfort, validation, advice, suggestions, etc.	“If you've got a cold or the flu do you take your weekly dose? I'm set to take mine today and have come down with a nasty flu. I'm going to call the pharmacy, but was curious to hear from all of you as well :)”
Offers Support or Information	Offering support, information, advice, or suggestions. Does not include any background information provided when requesting support or information.	“I see so many posts about people who are expecting to be diagnosed or have just been diagnosed. If there are any young people out there who are fearing the worst or any older people! Ask me your questions! I've been on all the common NSAIDs and I'm on my 3rd biologic. GO!”
Neither Requests nor Offers Support or Information	Does not request or offer support or information.	“I have been on Enbrel for a few months now. My boyfriend has been giving me my injections because I couldn't bring myself to do it. Tonight he fell asleep on the couch and I didn't have the heart to wake him. So, I just grabbed my shot, took a deep breath, and DID IT! I didn't have anyone to share my excitement with, and I knew you guys would understand.”
Both Requests and Offers Support or Information	Any indication of asking a specific question or for support or advice, and providing support or information that may help someone else.	“So, when I am feeling sore and stiff I try to stretch it out as much as possible. One thing that really helps me is hanging upside down off of the couch. Sometimes I even try to do a hand stand against the wall. Am I strange? What sort of stretches do you do?”

Note. The sample posts were copied verbatim from the OSN.

Table 3

Association between Negative Emotional Valence and Requesting Support/Information

	Requests Support/Information	Does Not Request Support/Information
Negative Emotional Valence	399	49
Other Emotional Valence	417	121

Figure 1

Association between Negative Emotional Valence and Requesting Support/Information