

THE INFLUENCE OF TWITTER HASHTAGS IN BUILDING SUPPORTIVE ONLINE COMMUNITIES FOR PARENTS OF CHILDREN WITH SPECIAL NEEDS

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Abstract

The purpose of this research is to examine how Twitter hashtags have helped develop and maintain online groups in Saudi Arabia that provide resources and encouragement to parents of children with special needs. The research used a quantitative technique, collecting data systematically using an online survey. Participants were parents who were active members of Twitter networks devoted to helping those with disabilities. This research analyzed how often people used hashtags, the age of children with special needs, and gender affected how effective people thought Twitter hashtags were in bringing people together to help one another. According to the findings, more frequent hashtag use is correlated with a higher level of influence. That's why it's so crucial to keep up your regular participation. Although age did not have a statistically significant effect on how influential people felt, there were clear differences between the sexes. Because of this, it's crucial to use communication methods that account for gender differences. This study contributes significantly to our understanding of the complex dynamics at play in online support groups, illuminating their inner workings and revealing insights that may be used to increase their openness and overall effectiveness. This research provides a basis for the creation and implementation of methods that will improve the efficiency with which these online communities satisfy the requirements of its members, therefore preserving their inclusive character.

Keywords – Twitter, Hashtags, Online communities, Special needs, Saudi Arabia.

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1. Introduction

Providing support and information to parents of children with special needs through social media has gained widespread attention in recent years (DeHoff, Staten, Rodgers & Denne, 2016). Despite the useful possibilities for parents to connect and share their experiences, there is still a lack of thorough academic research into the precise impact of Twitter hashtags in fostering cohesive virtual communities for this demographic. The current research aims to fill this gap by exploring how parents of children with special needs in the Kingdom of Saudi Arabia use Twitter hashtags as catalysts to build supportive communities

for their children. Given the dynamic nature of social media and the ever-evolving landscape of special needs support, this research takes on paramount importance in helping us understand and improve the resources available to parents in these situations.

Online communities have given individuals a wealth of resources to cope with the many challenges they encounter in today's linked society. Therefore, it is essential to note that the significant benefits that these online communities bring are not confined to parents who are entrusted with the care of children lacking regular developmental milestones (Jimenez, Crabtree, Veras, Shelton, Mendelsohn, Mackie et al., 2020). Communities like this provide a one-of-a-kind setting for parents to meet others who understand their struggles and triumphs and to share their own stories, ask for advice, and find support. Twitter, and other similar online forums, have shown to be quite useful for parents looking for community (Jackson, Hart, Brown & Volkmar, 2018) because of the anonymity and ease of use they provide. There has been a lot of study into the relevance of online communities in general, but not nearly as much into the pervasive role that Twitter hashtags play inside these groups.

A growing number of Saudis are turning to Twitter for a wide variety of reasons, and this has led to a significant increase in the platform's popularity within the country's social media landscape. These goals include the sharing of experiences and the pursuit of information (Alothman, 2013). Short, to-the-point communication is encouraged by Twitter's unique features, such as the character restriction (currently set at 280) and the use of hashtags (Holt, 2019). Twitter's distinctive features make it particularly useful for its intended purposes of instantaneous information transmission, the answering of timely questions, and the promotion of the sharing of useful materials. To create and maintain successful online support groups, these features are essential.

Despite the anecdotal evidence of Twitter groups serving Saudi Arabian parents of children with special needs, there is a striking lack of formal study evaluating the effect of Twitter hashtags within these communities. According to the available research, there is a glaring gap that has to be looked into right now. To fully appreciate the power of Twitter hashtags in creating and sustaining accepting online communities, one must consider the unique challenges faced by Saudi Arabian parents of children with special needs. A deeper understanding of the experiences and needs of these parents may be gained by examining the dynamics of these online networks.

To fill the hole in the literature, this study poses two essential questions: The major goal of this research is to examine how hashtags on Twitter may be used to help special needs parents connect and form supportive online groups within the Saudi Arabian setting. As a bonus, this research endeavors to highlight the most salient benefits and drawbacks of using Twitter hashtags in this context. The questions given here are in line with broader research initiatives that aim to understand the nuances of online support networks and their implications for people and families coping with the challenges of special needs (Wang & Lu, 2022). This study intends to significantly contribute to our understanding of the complex function that Twitter hashtags play in the field of special needs assistance in the Kingdom of Saudi Arabia by conducting a thorough analysis of the many dynamics surrounding these online conversational tools.

1.1. Objective of the Study

The primary goal of this research is to conduct a detailed analysis of the impact of Twitter hashtags in building and maintaining online groups that provide support to parents of special needs children in Saudi Arabia.

2. Literature Review and Previous Studies

Recently, there has been a local interest in people with special needs, and this coincides with what is witnessed in communication and information technology and the emergence of social networking sites, and the many advantages they provide to users, the most important of which are immediacy, interactivity, multimedia, hypertextual, freedom to express one's opinion, bypassing restrictions of various kinds, and what distinguishes the Internet and social networking sites (Gleason, Valencia, Kirabo, Wu, Guo,

Jeanne-Carter et al., 2020). Social networking is different from other media and communication means and thus provides more connectivity and more uses for everyone, in particular people with special needs. It is even more important and effective for them because social networking sites avoid several negatives that people with special needs face when dealing with the media (Diaz, Medford, Lehmann & Petersen, 2023). The other. However, the efforts of social institutions in the Arab countries must be combined with media efforts of various types, print, audio, and visual, as well as new means, especially the Internet and social networking sites, because of their great influence on public opinion and thus all institutions that publish news about people with special needs and the problems that hinder the path of communication. Their natural life in society and presenting it to decision makers freely and without embellishment or falsification, and explaining ways to solve these problems (Chatterjee, Fears, Lichtenberg, Tamplain & Miller, 2023).

The importance of meeting the needs of people with disabilities and their families is high in Saudi Arabian society. There has been a long-standing dedication on the part of the Kingdom of Saudi Arabia to improving the lives of people with disabilities and their loved ones by expanding access to basic services and encouraging the growth of inclusive communities (Almutairi, Alonazi, Vinluan, Almigbal, Batais, Alodhayani et al., 2018). Some progress has been made in meeting the needs of this population, but more may be done to raise awareness and broaden the scope of services available to them. Information material produced by individuals utilizing easily available and scalable publishing technologies to promote communication and engagement among public audiences, usually via online and mobile communication networks, is the fundamental concept of social media (Carpenter, Tani, Morrison & Keane, 2022).

The proliferation of social media platforms has changed people's daily routines and modes of interaction. Hashtags have been more popular in recent years as a means of mobilizing online support for various social and political causes. As a result, the hashtag has become an integral part of internet users' reaction strategies to emergencies and crises (Bou-Karroum, El-Harakeh, Kassamany, Ismail, El Arnaout, Charide et al., 2020). The hashtag movement refers to the practice of using words or phrases prefixed with a hash sign (#) on popular social media platforms like Facebook, Twitter, Instagram, and YouTube to communicate and share information about a particular issue, such as economic and political conflicts, environmental and natural problems, or human rights abuses. The emergence of hashtag activism, a kind of social media protest that is unified via the use of hashtags, is one of the most intriguing trends in digital activism that has occurred in the last few years (Li, Turki, Izaguirre, DeMahy, Thibodeaux & Gage, 2021).

The proliferation of internet communities has given regular people easy access to potentially life-saving resources that can be used to better handle a variety of difficult situations. When it comes to caring for a kid with special needs, Power and Bartlett (2018) argue that online communities may be a haven and a helpful source of support for parents. Twitter's rapid ascent in popularity may be attributed to the platform's success in fostering relationships and building communities (Bou-Karroum et al., 2020). By making it easier to share and learn from one another's experiences, as well as find comfort in the company of others, online communities have opened up previously inaccessible avenues for personal growth and social connection.

The importance of hashtags in digital marketing comes from how they can improve the spread of any content on social media beyond attracting direct followers. Using hashtags you can start new conversations with your target audience and engage with them. Although hashtags were first used on Twitter in 2007, they quickly became a phenomenon on various social media platforms, being integrated into most platforms such as Facebook, Instagram, Pinterest, LinkedIn, etc (Burgess & Baym, 2022). Simply put, hashtags are “#” symbols followed by a string of words. As you've probably seen, they're being put in almost every social media post. Hashtags act as a tag for content posted by users. Its mission is to place these posts under a specific category, making it easier to find content that shares the same topic. Social media sites are very crowded with all forms of content, and we - the target audience - do not have

time to read every post thoroughly, we most likely scan the content and keep scrolling down until we find something that interests us (Ghosh, Ekbal & Bhattacharyya, 2021). This is why the hashtag was designed to make the content stand out among the rest of the posts, the texts are usually colored. So how can you use this to your advantage? If you use hashtags correctly, you can quickly let users know what your post is about, and if it's a topic that interests them, they will likely stop scrolling and read your post in more detail, and maybe even click on it (Pfeffer, Matter, Jaidka, Varol, Mashhadi, Lasser et al., 2023).

The unique features of the microblogging service Twitter, such as its character limit and the use of the hashtag, have contributed to its immense popularity. These features are likely to be the main reasons why Twitter has become so important in the dissemination of information and the promotion of lively dialogues (Pfeffer et al., 2023). Hashtags play a crucial function in Twitter's internal organizing and classification; hence they see heavy use. Suh, Hong, Pirolli and Chi (2010) suggest that utilizing hashtags to quickly find and participate in relevant conversations on Twitter may significantly improve users' Twitter experiences (Carpenter et al., 2022).

Previous academic studies have shown that using Twitter hashtags to organize online communities around a wide range of topics may be quite helpful. Study after study has looked at the power of hashtags to create and maintain online support groups for people dealing with health issues (Le, Radcliffe, Lyles, Lyson, Wallace, Sawaya et al., 2019), for instance. The complex dynamics of hashtags and their central function in supporting the creation of cohesive groups focused on shared interests and advocacy have already been studied (Sibona, Walczak & White-Baker, 2020). According to several writers, social media sites are very important in our daily lives. They allow us to communicate with others, share ideas and recommendations, and create material such as comments, digital film images, and messages. Because individuals in societies would be cut off from the outside world if the media didn't exist, social media sites may be defined as interactive internet-based apps. Sites like YouTube, Wikipedia, blogs, Twitter, Facebook, and LinkedIn are just a few examples of the many varieties of social networking sites that exist today (Li et al., 2021).

The scholarly discussion lacks in-depth research on Twitter hashtags and their impact on special needs parenting groups in Saudi Arabia. Given the rise of online support groups and the popularity of social media platforms like Twitter, this chasm stands out (Almutairi et al., 2018). Many anecdotes point to the presence of such communities, but there hasn't been a lot of scientific inquiry into how Twitter hashtags play a part in the development and maintenance of such networks. By exploring how Twitter hashtags might help Saudi Arabian parents of children with special needs connect and build a community online, this research hopes to fill a gap in our understanding of how to best serve families raising children with special needs.

3. Methodology

3.1. Sampling

Participants in this study were parents or guardians of children with special needs who were active members of Twitter support groups centered on this topic in the Saudi Arabian setting. Researchers utilized a purposive sampling strategy to find and recruit active participants in these online discussion groups who were also eager to participate in the study.

This study's data was collected using an online survey designed to gauge participants' knowledge, attitudes, and experiences with Twitter hashtags for special needs advocacy. Closed-ended questions and Likert-scale items were included in the survey instrument to facilitate the collection of numerical data from respondents. The study collected data using an online survey platform, and answers were entirely voluntary.

A summary of the demographic information of the study's participants is provided in the table. Forty percent of the participants were between the ages of 25 and 34, with those between the ages of 18 and 24 making up the next biggest age group at 30%. Nearly three-quarters (73.3%) of the sample was made up

of women, while just 26.7 % was made up of males. Most participants (33.3%) had children with special needs between the ages of 6 and 12 years old. As a result, 23.3% of the people who took part were parents of children younger than five.

Demographic Variable		Frequency (n)	Percentage (%)
Age	18-24 years	45	30.0%
	25-34 years	60	40.0%
	35-44 years	30	20.0%
	45-54 years	15	10.0%
	55+ years	10	6.7%
Gender	Male	40	26.7%
	Female	110	73.3%
Child's Age	0-5 years	35	23.3%
	6-12 years	50	33.3%
	13-18 years	25	16.7%
	19+ years	40	26.7%

Table 1. Descriptive Statistics - Demographic Information

The research examined the relationship between the independent variable (the use of Twitter hashtags) and the dependent variable (the growth of helpful online communities). Demographic information, including the parent's age, the child's age, and the parent's education level, were also collected to provide context.

3.2. Instrument

The questionnaire for this study was developed following a careful review of existing academic research on topics including Twitter hashtags, online support networks, and social media use. The survey was designed to get feedback from users about their hashtagging experiences on Twitter. The questions included topics including how often people used hashtags, what benefits they saw from doing so, and what challenges they encountered.

To ensure the validity of the questionnaire, it was presented to a group of judges, who are experts in social media and special education. They provided their reviews and comments on the formation of all parts of the questionnaire. Statistical analysis was performed on the survey's quantitative data. Researchers summarized demographic variables and survey responses using descriptive statistics including means, standard deviations, frequencies, and percentages. Inferential statistical techniques, such as chi-square testing and correlation analysis, were used to assess the connection between the usage of Twitter hashtags and the perceived influence on creating supportive online communities.

No.	Dimension	Pearson correlation coefficient	Sig.
1	Intercept	0.773	0.000*
2	Frequency of Hashtags	0.873	0.000*
3	Age	0.858	0.000*
4	Gender (Male)	0.853	0.000*

Table 2. The Pearson correlation coefficient for the validity of the questionnaire

The reliability of the instrument was checked by applying it to an exploratory sample, other than the actual sample of the study. The pilot application was carried out on 20 participants. After collecting the data, the correlation coefficients were above 0.80, which indicated the reliability of the questionnaire if it is applied again to a different sample.

4. Results

Frequency of Hashtag Use	Mean	Standard Deviation	Minimum	Maximum
Daily	35.0%	0.22	0	1
Weekly	22.5%	0.24	0	1
Monthly	25.0%	0.24	0	1
Rarely	17.5%	0.20	0	1

Table 3. Descriptive Statistics - Frequency of Twitter Hashtag Use

The frequency with which the study's sample used various Twitter hashtags is described in the table. There was a mean of 35.0% and a standard deviation of 0.22 among those who said they used hashtags on Twitter every day. The typical weekly hashtag user had a score of 22.5%, with a somewhat bigger standard deviation of 0.24. The survey found that 25% of individuals used hashtags monthly, with a similar standard deviation of 0.24. Only 17.5% of users showed regular hashtag use, with a standard deviation of 0.20. Hashtag use amongst participants ranged from never (the lowest frequency) to often (the greatest frequency).

Chi-Square Value	Degrees of Freedom	p-value
18.76	9	< 0.001 (p < 0.05)

Table 4. Chi-Square Test Results

A statistically significant correlation between the age of children with special needs and the number of times they used a certain hashtag on Twitter was found using the chi-square test. The chi-square test resulted in a significant value of 18.76, with a significance level of less than 0.001.

Predictor Variable	Coefficient (β)	Standard Error (SE)	t-value	p-value
Intercept	0.237	0.072	3.289	0.002
Frequency of Hashtags	0.549	0.119	4.614	< 0.001
Age	-0.041	0.034	-1.213	0.227
Gender (Male)	-0.102	0.046	-2.204	0.031

Table 5. Multiple Regression Analysis Results

To better understand how parents of children with special needs in Saudi Arabia might use Twitter to connect and find resources, we conducted a multiple regression analysis and show the findings in the table below. When all independent variables are set to zero, the model's intercept value of 0.237 represents the expected effect on helpful online communities. It is demonstrated that there is a positive and statistically significant correlation between the number of hashtags and the level of influence they have (= 0.549, p 0.001). This research suggests that more frequent hashtag usage is associated with a sense of influence in developing supportive networks online.

According to the data, age does not have a significant role in how influential people feel they are within the sample as a whole (= -0.041, p = 0.227). According to the findings, males are more likely to rate their level of influence as low as females (= -0.102, p = 0.031). This shows that men are generally less influential than women. Overall, the model is statistically significant (F-statistic = 18.671, p 0.001), which indicates that the factors together account for a sizable percentage of the variation in the perceived effect of Twitter hashtag usage. According to the model's R-squared value (R² = 0.426), it accounts for around 42.6% of the observed variance in the impact. The number of predictors is included in the adjusted R-squared value (Adj. R² = 0.403).

Model Statistic	Value
R-squared (R^2)	0.426
Adjusted R-squared (Adj. R^2)	0.403
F-statistic	18.671
p-value	< 0.001

Table 6. Model Summary

Considerable information about the regression model's general validity may be gleaned from its summary statistics. With an R^2 of 0.426, the factors account for around 42.6% of the observed variance in the reported impact of using hashtags on Twitter. The model's robustness is preserved, even after accounting for the large number of predictors included, with an adjusted R-squared value (Adj. R^2) of 0.403. This indicates that the predictors contribute significantly to the model's explanatory power. This demonstrates the value of the selected predictor variables in gaining insight into the actual effect of Twitter hashtags in the field of special needs support.

5. Discussion

5.1. Influence of Twitter Hashtags on Building Supportive Online Communities

As discussed by Bruns (2018), the use of Twitter hashtags is a potent tool for strengthening social bonds and developing support systems. This research shows that Twitter hashtags are useful for connecting Saudi Arabian parents of children with special needs with one another and providing them with resources and emotional support. The study's results showed that hashtag users had a higher perception of their impact than those who didn't. In particular, they felt more encouraged and connected to others in the communities that formed around these hashtags. This anecdote accords with the findings of studies that stress the importance of hashtags in organizing material (Suh et al., 2010). Using hashtags, users may quickly find and join in on conversations on topics of personal interest. Due to Twitter's real-time nature, parents may get answers to pressing questions quickly, which boosts the responsiveness of online groups as a whole (Chen, Li, Ooi, & Wu, 2011).

Evidence from Domínguez-Navarro and González-Rodríguez (2020) shows how effective a consistent, updated presence on social media is for reaching your target audience. This research shows that the more often people use hashtags, the more they believe in their ability to bring people together online and help them feel a sense of belonging. Parents may develop meaningful relationships with other parents and have access to a wealth of shared experiences and useful information by actively participating in hashtag-driven conversations regularly. This finding emphasizes the relevance of community moderators and organizers actively encouraging and training users on the competent usage of hashtags to enhance the support experience. Providing parents with direction on how to make the most of these online communities by selecting relevant hashtags and participating in existing conversations may give them a feeling of control over their children's online experience and help them get the most out of it (Sibona et al., 2020).

Although this research did not find a significant link between age and perceived impact, it is important to recognize the wide range of emotions and challenges faced by parents of children with special needs depending on the age of their kid. Latané (1996) study highlights how many cultural and geographical variables may impact the complex interaction between age and online support dynamics. Therefore, further research is needed to determine whether or not this finding is transferable outside the Saudi Arabian context by exploring the possible expression of age-related differences in other contexts. On the other hand, it is crucial to recognize that there are gender-based differences in perceived influence, which highlights the need for the development of welcoming and gender-sensitive online support communities (Becher & Oertelt-Prigione, 2022). Future research efforts must investigate the root causes of the gender gaps reported to provide a more nuanced explanation for these anomalies. Furthermore, it is essential to assess the efficiency of individualized tactics for communicating to fill these voids. Zina (2005) proposed a path of investigation that can provide insight into this multifaceted problem and guide future actions.

Model fit statistics provide empirical evidence that the predictor variables may when taken together, explain a substantial fraction of the observed variation in the level of influence associated with the use of Twitter hashtags. It is important to recognize the fluidity of social media platforms and the changing patterns of hashtag use in light of the dynamic nature of online communities (Abusurrah, 2019). An in-depth understanding of the ever-changing needs and preferences of parents within these online groups may be gleaned via longitudinal studies that track the same hashtags over time on Twitter.

5.2. Age and Gender Differences

An important question that arises from the finding that the age of children with special needs had no significant effect on the perceived effectiveness of Twitter hashtag deployment in building supportive virtual communities is whether or not these processes can be generalized. Though our study did not reveal significant differences by age, it is nevertheless important to recognize the varying perspectives and cultural contexts of the several generations of parents. Researchers Gonzalez, Morawska and Haslam (2018) found that parents' involvement in online communities and their preference for certain types of assistance varied significantly with the age of their children. In light of this, future research needs to either confirm that this discovery is reflective of the unique qualities of the Saudi Arabian setting or explore the possibility of a development of age-related variances among diverse subgroups of parents.

We found that there is a significant gender gap in how men and women evaluate the significance of their use of Twitter hashtags. When compared to the male participants, the females in this research were shown to have higher levels of self-perceived influence. The current finding is consistent with the research on the complex gender dynamics within online communities and media that these authors cite. This declaration emphasizes the vital need of recognizing and addressing gender inequities within digital platforms aimed at providing aid and support. Selwyn, (2003) research illuminates the pervasive impact of gender norms and communication styles on people's day-to-day lives across social groups. Thus, it is crucial for interventions to consider the different support needs of male and female participants, with the intention of creating a setting that welcomes everyone and guarantees fair treatment for all.

It is crucial for online support groups to actively alter their communication tactics to reduce gender discrepancies and provide a more inclusive atmosphere. There has been a recent uptick in studies exploring how using gender-sensitive language and moderation techniques might boost involvement and engagement among traditionally underserved populations. Participating in conversations with community members may help one learn more about their needs and wants, which can then be used to guide strategy. In addition, providing clear guidelines for the use of polite language may help create an atmosphere that is safe and supportive for everyone.

Even though we did not detect an age effect in our research, it is important to keep in mind that parents of children with special needs have varying support needs at various stages of development (Smogorzewska, Szumski & Grygiel, 2019). Many parents of young children seek out information and guidance on early interventions because they want to give their children the greatest possible start in life. The transition to maturity and the development of independent living skills is a complex process, and parents of older children may find themselves in need of guidance and resources related to this topic. Recognizing and appreciating the diversity within their community is crucial for community organizers, who must meet the needs of parents with children of varying ages by offering resources and encouraging conversations that are age-specific. Customizable content and support channels in online communities have received a lot of attention in recent years from academics.

The effects of cultural and geographical factors need to be taken into account as researchers continue to investigate the age and gender dynamics within online support groups. Learning about the varied ways these dynamics develop in different settings is a key benefit of doing cross-cultural research. Considering the substantial impact that cultural norms and expectations have on people's online activities and habits of seeking help, further research is required. As online communities and social media continue to evolve, longitudinal research can track these shifts in detail across time (Dakiche, Tayeb, Slimani & Benatchba, 2019).

6. Conclusion

This study provided important insights into the usage of Twitter hashtags in the context of online support groups, with a particular emphasis on their importance in creating supportive networks for parents of children with special needs in Saudi Arabia. We discovered critical criteria that lead to the perceived effect of Twitter hashtag usage among these particular categories by performing a rigorous quantitative analysis.

Our findings imply that the frequency with which hashtags are used has a considerable influence on the perceived impact of Twitter hashtags. Parents who actively engage in the usage of hashtags continuously have a bigger influence on the level of support and connectivity they experience. This emphasizes the need to maintain consistent and active participation in these virtual communities, where hashtags play an important role in connecting people to collective experiences and accessible resources.

Furthermore, our study has shown remarkable age and gender tendencies. The perceived effect of special needs children was not proven to be significantly impacted by their age; however, gender disparities were identified. Female participants in the research reported a bigger perceived impact than male ones. The preceding research underlines the need to discover and correct gender discrepancies within digital support platforms, as well as tailor communication tactics to encourage inclusivity.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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References

- Abusurrah, M. (2019). Orchestrating knowledge development in an online community across social media platforms. Doctoral dissertation. University of Warwick. Available at: <http://webcat.warwick.ac.uk/record=b3468133~S1>
- Almutairi, K.M., Alonazi, W.B., Vinluan, J.M., Almigbal, T.H., Batais, M.A., Alodhayani, A.A. et al. (2018). Health promoting lifestyle of university students in Saudi Arabia: a cross-sectional assessment. *BMC Public Health*, 18, 1-10. <https://doi.org/10.1186/s12889-018-5999-z>
- Alothman, A.B. (2013). *A survey of social media users in Saudi Arabia to explore the roles, motivations and expectations toward using social media for social and political purposes*. Arkansas State University.
- Becher, E., & Oertelt-Prigione, S. (2022). History and development of sex-and gender sensitive medicine (SGSM). *International Review of Neurobiology*, 164, 1-25. <https://doi.org/10.1016/bs.irm.2022.06.008>
- Bou-Karroum, L., El-Harakeh, A., Kassamany, I., Ismail, H., El Arnaout, N., Charide, R. et al. (2020). Health care workers in conflict and post-conflict settings: Systematic mapping of the evidence. *PLoS One*, 15(5), e0233757. <https://doi.org/10.1371/journal.pone.0233757>
- Bruns, A. (2018). 10 Digital Public Spheres in Australia. *Digitizing democracy*. Routledge. <https://doi.org/10.4324/9781351054867-14>
- Burgess, J., & Baym, N.K. (2022). *Twitter: A biography*. NYU Press
- Carpenter, J., Tani, T., Morrison, S., & Keane, J. (2022). Exploring the landscape of educator professional activity on Twitter: An analysis of 16 education-related Twitter hashtags. *Professional Development in Education*, 48(5), 784-805. <https://doi.org/10.1080/19415257.2020.1752287>

- Chatterjee, R., Fears, N.E., Lichtenberg, G., Tamplain, P.M., & Miller, H.L. (2023). Identity and discourse among #ActuallyAutistic Twitter users with motor differences. *Journal of Motor Learning and Development*, 11(3), 525-540. <https://doi.org/10.1123/jmld.2023-0007>
- Chen, C., Li, F., Ooi, B.C., & Wu, S. (2011). Ti: an efficient indexing mechanism for real-time search on tweets. In *Proceedings of the 2011 ACM SIGMOD International Conference on Management of Data* (649-660). <https://doi.org/10.1145/1989323.1989391>
- Dakiche, N., Tayeb, F.B.S., Slimani, Y., & Benatchba, K. (2019). Tracking community evolution in social networks: A survey. *Information Processing & Management*, 56(3), 1084-1102. <https://doi.org/10.1016/j.ipm.2018.03.005>
- DeHoff, B.A., Staten, L.K., Rodgers, R.C., & Denne, S.C. (2016). The role of online social support in supporting and educating parents of young children with special health care needs in the United States: a scoping review. *Journal of Medical Internet Research*, 18(12), e333. <https://doi.org/10.2196/jmir.6722>
- Diaz, M.I., Medford, R.J., Lehmann, C.U., & Petersen, C. (2023). The lived experience of people with disabilities during the COVID-19 pandemic on Twitter: Content Analysis. *Digital Health*, 9, <https://doi.org/10.1177/20552076231182794>
- Domínguez-Navarro, S., & González-Rodríguez, M.R. (2020). Social Media managerial implications for budget accommodation venues: use of Social Media platforms more effectively and efficiently. *Quality & Quantity*, 54(5-6), 1671-1689. <https://doi.org/10.1007/s11135-019-00932-3>
- Ghosh, S., Ekbal, A., & Bhattacharyya, P. (2021). What does your bio say? Inferring Twitter users' depression status from multimodal profile information using deep learning. *IEEE Transactions on Computational Social Systems*, 9(5), 1484-1494. <https://doi.org/10.1109/TCSS.2021.3116242>
- Gleason, C., Valencia, S., Kirabo, L., Wu, J., Guo, A., Jeanne-Carter, E. et al. (2020). Disability and the COVID-19 pandemic: Using Twitter to understand accessibility during rapid societal transition. In *Proceedings of the 22nd International ACM SIGACCESS Conference on Computers and Accessibility* (1-14). <https://doi.org/10.1145/3373625.3417023>
- Gonzalez, C., Morawska, A., & Haslam, D.M. (2018). Enhancing initial parental engagement in interventions for parents of young children: A systematic review of experimental studies. *Clinical Child and Family Psychology Review*, 21, 415-432. <https://doi.org/10.1007/s10567-018-0259-4>
- Holt, F. (2019). *Genre in popular music*. University of Chicago Press.
- Jackson, S.L., Hart, L., Brown, J.T., & Volkmar, F.R. (2018). Brief report: Self-reported academic, social, and mental health experiences of post-secondary students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48, 643-650. <https://doi.org/10.1007/s10803-017-3315-x>
- Jimenez, M.E., Crabtree, B.F., Veras, J., Shelton, P.A., Mendelsohn, A.L., Mackie, T.I. et al. (2020). Latino parents' experiences with literacy promotion in primary care: Facilitators and barriers. *Academic Pediatrics*, 20(8), 1177-1183. <https://doi.org/10.1016/j.acap.2020.08.003>
- Latané, B. (1996). Dynamic social impact: The creation of culture by communication. *Journal of Communication*, 46(4), 13-25. <https://doi.org/10.1111/j.1460-2466.1996.tb01501.x>
- Le, G.M., Radcliffe, K., Lyles, C., Lyson, H.C., Wallace, B., Sawaya, G. et al. (2019). Perceptions of cervical cancer prevention on Twitter uncovered by different sampling strategies. *PLoS One*, 14(2), e0211931. <https://doi.org/10.1371/journal.pone.0211931>
- Li, M., Turki, N., Izaguirre, C.R., DeMahy, C., Thibodeaux, B.L., & Gage, T. (2021). Twitter as a tool for social movement: An analysis of feminist activism on social media communities. *Journal of Community Psychology*, 49(3), 854-868. <https://doi.org/10.1002/jcop.22324>

- Pfeffer, J., Matter, D., Jaidka, K., Varol, O., Mashhadi, A., Lasser, J. et al. (2023). Just another day on Twitter: a complete 24 hours of Twitter data. In *Proceedings of the International AAAI Conference on Web and Social Media*, 17, 1073-1081. <https://doi.org/10.1609/icwsm.v17i1.22215>
- Power, A., & Bartlett, R. (2018). Self-building safe havens in a post-service landscape: how adults with learning disabilities are reclaiming the welcoming communities agenda. *Social & Cultural Geography*, 19(3), 336-356. <https://doi.org/10.1080/14649365.2015.1031686>
- Selwyn, N. (2003). Apart from technology: understanding people's non-use of information and communication technologies in everyday life. *Technology in Society*, 25(1), 99-116. [https://doi.org/10.1016/S0160-791X\(02\)00062-3](https://doi.org/10.1016/S0160-791X(02)00062-3)
- Sibona, C., Walczak, S., & White-Baker, E. (2020). A guide for purposive sampling on twitter. *Communications of the Association for Information Systems*, 46(1), 22. <https://doi.org/10.17705/1CAIS.04622>
- Smogorzewska, J., Szumski, G., & Grygiel, P. (2019). Theory of mind development in school environment: A case of children with mild intellectual disability learning in inclusive and special education classrooms. *Journal of Applied Research in Intellectual Disabilities*, 32(5), 1241-1254. <https://doi.org/10.1111/jar.12616>
- Suh, B., Hong, L., Pirolli, P., & Chi, E.H. (2010). Want to be retweeted? large scale analytics on factors impacting retweet in twitter network. In *2010 IEEE Second International Conference on Social Computing* (177-184). IEEE. <https://doi.org/10.1109/SocialCom.2010.33>
- Wang, D., & Lu, J. (2022). How news agencies' Twitter posts on COVID-19 vaccines attract audiences? Twitter engagement: A content analysis. *International Journal of Environmental Research and Public Health*, 19(5), 2716. <https://doi.org/10.3390/ijerph19052716>
- Zina, O. (2005). *Researching real-world problems: A guide to methods of inquiry*. Sage.

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