

ORIGINAL CONTRIBUTION

Unveiling LGBTQ+ Rights Movements in Pakistan: A Computational Sociology Inquiry through a Cultural Studies Lens

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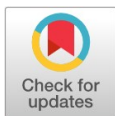
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Abstract— This study examines a multidisciplinary approach of computational sociology, psychological study, communicational dimensions, and cultural studies led by the LGBTQ+ movement in Pakistan; this approach is investigated by Judith Butler's Queer theory. The theory is represented as a theoretical framework for analyzing the identity we have within us through the LGBTQ+ movement and the existing scenario in Pakistan. By using a socio-psychological context, qualitative research would be the lens through which to inspect various facets of LGBTQ+ activism accepted in Pakistan. Computational sociology and behavioral psychology are the methods used to represent satisfactory patterns and acceptable trends and enhance the structural network offline or through online speeches by activists. Text mining and sentimental analysis would be the technique, alongside network analysis of online communication of social media platforms, which would be used for identifying patterns, structural networks, and the trends adopted both online and offline. Simultaneously, the interpretation from cultural studies would shed light on how cultural norms represent LGBTQ+ people by traversing cultural identity through Butler's theory. The scenarios of remarking LGBTQ+ is a defined theory that elaborates that gender reality is performative: it is real only as well as performed, signified by socio-cultural studies influenced by psychological strategies. This research work emphasizes cultural awareness through socio-psychological aspects in Pakistan, examining conventional ideas and power politics about gender and identity, reagreeing LGBTQ+. The findings are amazing in that they have a great impact on the LGBTQ+ rights movements in Pakistan, with the implicated uses for advocacy as well as refined thoughts for theoretical contributions in academic discourse. Though the study provides clear findings, rather it is also important to register the limitations, such as the potential biases in self-reported data and the confined scope of social and behavioral adaptation in Pakistan. Future research should be expanded by advanced computational techniques to incorporate the development of intersectional approaches to LGBTQ+.

Index Terms— LGBTQ+ rights movements, Pakistan, Computational sociology, Cultural studies, Queer theory

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Introduction

LGBTQ+ is a worldwide accepted phenomenon that reflects the revolutionary minds of the society representing adaptability of sexual orientation, psychological traits, trends to gender studies, and more than inclusive for prevailing this idea in society. It is essential, especially in Pakistan, to suffer the red line of enormous psychological, social, cultural, legal, and religious hurdles; in fact, these are the public domains that make LGBTQ+ according to their understanding level. Because of this hardly accepted phenomenon in Pakistan, the aim of this research paper is to investigate the LGBTQ+ movement in Pakistan through the lens of Judith Butler's Queer theory, which demonstrates not only computational sociology but the psychological analysis and cultural studies.

Pakistan has some specific and frequent traditional norms, which are complicated to some extent; it has a religious and revolutionary modern public at the same time; it has some new and old discourses on social justice and human rights. That is the reason this phenomenon becomes a trend through discrimination from legislative prosecution from the rebirth of the country; it evolves into a social shame to have sex with the same gender and exclusion from society. In spite of these obstacles, some grassroots initiatives are to be functionalized to support LGBTQ+ rights, which are vying for acceptance, acknowledgment, and legal safeguards.

This study is the inquiry based on the formula set by Butler to examine notions, relations, and questions about gender and sexuality. These initiatives and the focused contribution of the article are to give the multidisciplinary framework to get cultural experiences and activism in Pakistan. This contribution would assist different fields in an effort for thoughtful analysis for academic debates and instructions for legal advocacy that support inclusivity in the society of Pakistan.

Historical context

An early wave for the rights of LGBTQ+ emerged in the late 20th century, which was marked by clandestine efforts, whose purpose was to raise advocacy and awareness for the rights of the people who are having sex with the same gender and are in the minority (Ali, 2018). This has been a social taboo in a religious country; these initiatives, though, have been very frantic, but the foundational movements made some mixed opinions; evolved from the urban areas, driven by some so-called minority gender, organized for striving and visible acceptance (Khan, 2017).

This prevailing phenomenon has been tabooed since colonial times, so it has faced social and legal challenges exacerbated by colonial-era times by criminalizing same-sex relations. This legal insecurity rooted in discrimination, harassment, and violence against the movement of LGBTQ+ leads to invisibility and marginalization in society (Khan & Gul, 2021).

Various cases, such as the 'Shariah Court Case', challenged the legal constitutionality of anti-LGBTQ+, representing the struggle for human rights. Likewise, numerous other incidents have shaped the legal act to make a constitution for LGBTQ+ rights, raising activism in Pakistan. The precedents of the legal cases are the Naz Male Health Alliance and the legal battle against discriminatory laws.

Contemporary status

Judith Butler, an American philosopher, published her important book *Gender Trouble* in 1990, arguing that gender is not set but rather enacted in certain social situations. Butler, unlike many modern philosophers in gender studies, who consider gender as a social construct, maintained that sex is socially formed despite being perceived as 'natural.' This article examines Butler's interpretation of sex and gender in Queer theory, which had a profound impact on feminist studies.

In the modern times of the 21st century, the rights of LGBTQ+ movements have gained some momentum, driven by digital activism, international solidarity, and the active participation of local activists (Ahmed, 2021). Still, there are many existing challenges, including threats from conservatives' attitudes and insecurity from legal protection; forces who are in favor of the LGBTQ+ movement continue to push the communities toward the acceptance of equality, visibility, and social change (khan, 2022). The goal of this research article is also to emphasize and evaluate the significance within the contextual framework of religious society, socio-cultural, legal framework, and human rights discourse.

The movement for LGBTQ+ rights has to be fought in Pakistani society for social justice, gender minorities, and equality in the sexes (Khan, 2019). This is the open challenge that the activists might have for the social norms promoting visibility, logical practices, and amplifying marginalized voices for striving to create a more balanced, inclusive society based on equality (Hussain, 2020). The aim of the movement is to fight for the rights of LGBTQ+ interconnect with broader connection of human rights with social progress in Pakistan.

The initial act of the movement is to functionalize the efforts towards legal reformation, and dismantle the limited social norms; and the promotion of legal recognition and protection for sexual and gender minorities (Ahmed, 2020). These bold and encountered initiatives make the pave to legislative reforms and judicial interventions. These acts are symbolic but significant for having access to positive gestures, encompassing benefits in healthcare, employment protection sector, and by anti-discrimination measures.

The initiative must be taken by the movement was public healthcare which aimed at addressing the specific basic needs and exposures of sexual and gender minorities (Ali, 2019). On the other hand, the efforts for advocacy promote not only inclusive healthcare

services; fighting with serious stigmas of HIV/AIDS, but for the improvement of mental health disparities (Khan, 2020). The activists of the movement are trying to contribute in advocacy for comprehensive sexual education for the reduction of harmful strategies, and enhance culturally competent healthcare sureties and practices. The aim of the movement is to contribute to the improvement of health outcomes and to the well-being of marginalized gender communities (Hussain, 2021).

Computational sociology approach in cultural studies

Computer social science is an interdisciplinary study that employs computer approaches to develop theories of human behavior by analyzing big datasets from social media, the internet, and digital archives. Its future is dependent on novel data sources, procedures, and the ability to develop new ideas or elaborate on existing interpretations. The field's fast growth across disciplines makes consensus difficult, but it is critical for understanding human behavior.

In recent years, computational sociology; its demand, existence with the connection with cultural studies has become the topic of the day; emerged as a powerful multidisciplinary approach for understanding the complex socio-cultural phenomenon. This approach influences by computational methods to investigate cultural dynamics, behavioural change, social movement, and identify the political change in diverse change of acceptance. In this paper, we apply a computational sociology approach to explore LGBTQ+ rights movements in Pakistan, shedding light on the socio-psychological cultural landscape and activism within the country. With studies in seven areas—social networks, collective behavior, political sociology, sociology of knowledge, cultural sociology, social psychology, emotions, culture production, economic sociology, and demography—computational social science is fast advancing into a number of subfields of sociology. However, the area has problems with data opacity and ethics. To ensure sociological theory's long-term survival, future research should collaborate with other social science domains and integrate sociological theory.

In the context of Pakistan's socio-psychological milieu, LGBTQ+ rights movements have evolved as a contested territory where activists, policymakers, and marginalized populations fight for recognition, inclusion, and social justice. We intend to explore the discursive formations, mobilization techniques, and network structures of LGBTQ+ activism in Pakistan using a computational sociological perspective. In interpreting computational findings, we use cultural studies theories and frameworks to situate LGBTQ+ rights movements within Pakistan's socio-cultural setting. Hegemony, resistance, and cultural representation are useful analytical tools for studying power relations, identity building, and discursive formations in the LGBTQ+ movement. Using a cultural studies perspective, we hope to shed light on the socio-psychological ramifications of LGBTQ+ advocacy and its potential for societal change in Pakistan.

Problem statement

In Pakistan, there are many challenges faced by socio-cultural discrimination by transgender people, compounded by societal and legal barriers, which are impeding the right to identity and equality. Despite global achievements and advancement for the rights of LGBTQ+ individuals, in Pakistan, the topic is still under discussion and researched even inadequately understood. These complex dynamics are frequently ignored in Pakistani society, which is difficult to adapt or digest for giving LGBTQ+ rights to the transgender community, especially if the discussion revolves around the digital platform and cultural narration of social behavior for the civil rights movement. In order to fill the gap, the purpose of this research article is to examine social platform data for cultural studies through the lens of computational sociology to determine the public attitude towards the LGBTQ+ rights movement in Pakistan. By doing the research, the socio-political and behavioral advancement environment would support policy-making initiatives and reformative advocacy.

Research question

- How do cultural narratives and social media platforms affect LGBTQ+ rights movements in Pakistan, and what factors, like computational sociology and big data, influence the pattern and activists' social perceptions for advancing these rights movements?

This research question has the objective of exploring the narratives of digital platforms, cultural behavior, and social acceptance of LGBTQ+ rights movements in Pakistan. It assists in how online and offline discourses shape and highlight social activism and advocacy for the achievement of LGBTQ+ community rights. By implementing computational sociology and digital big data techniques, the research work aims to uncover the challenges for shaping the behavior for positivity and identify the influential activists within these movements. Furthermore, it also provides an understanding of the opportunities and challenges faced by LGBTQ+ individuals in Pakistan.

Limitations of the study

Despite a valuable contribution to the LGBTQ+ rights movement, there are various limitations, including selection bias in purposive sampling, only focusing on social media platforms for analyzing offline and online communal discourses, which does not only cover the full

diversity of the rights of LGBTQ+ movement but also have the courage to understand the incomplete and skewed behavior of the movement's dynamics. Furthermore, computational methods would provide insights for challenging data interpretation. However, social media data can be massive or noisy with misinformation or biased to some extent, which can affect the validity and accuracy of the analysis. At this stage, sentimental analysis and network analysis of computational sociology will empower the limit, which would elaborate human communication and social interaction.

For ethical considerations, it would be essential to be limited by the researchers to pose significant challenges, especially when dealing with online data. For ensuring the privacy and anonymity of the data, it is essential to be unbiased as this sensitive topic of LGBTQ+ movement is crucial; highlighted the risk and challenges of transgenders' identities. Finally, the research would be around qualitative research method and it is the limitation for generalizability of the findings.

Literature Review

Every individual has a unique gender identity and sexual orientation. Who you are attracted to romantically or physically is a measure of your sexual orientation. Regardless of your biological sex, gender identity refers to your subjective sense of being male, female, both, or neither. The majority of people do not share the sexual orientation or gender identity of LGBTQ+ individuals. It is critical to understand that being LGBTQ+ does not imply having a mental health condition or other issues. Despite the fact that being LGBTQ+ is not a mental illness, many LGBTQ+ individuals struggle with their mental health. Within the LGBTQ+ community, bisexual and transgender individuals have the highest prevalence of mental health issues. The LGBTQ+ community's younger members have the most mental health issues of any age group (Ahmed, 2020).

The majority of LGBTQ+ people are incredibly strong and will overcome hardship with the support of their friends, family, and communities. One study found that compared to heterosexuals, LGBTQ+ people used mental health therapies 2.5 times more frequently. Along with unfavourable and traumatic experiences, they are more prone to experience guilt, fear, and discrimination. In addition, a large number of LGBTQ+ individuals belong to a second, third, or even more disadvantaged communities. These individuals have complicated experiences that can't be fully understood in a single area of their lives. Being LGBTQ+ is associated with a number of unfavourable stereotypes, which makes many people uncomfortable disclosing this significant aspect of their identity. People run the danger of rejection from friends, coworkers, and peers when they openly display this aspect of themselves, which exacerbates loneliness.

With the help of the lens of cultural studies by Butler, the researchers have to examine the computational-social way for examining LGBTQ+ activism with broader psychological-cultural processes; exploring issues of identity, and represent Pakistani society. By analysing and synthesizing the previous studies, this paper has the insights for sociology, cultural studies, psychological acceptance shed light on the complexities of LGBTQ+ right advocate for the social acceptance in Pakistan. This analysis of the paper would highlight the role of digital technologies, social networks, and discursive practices in shaping the contour of resistance and acceptance.

For researchers, measuring a variety of cultural, social, and behavioural issues presents difficulties. Evaluations of political beliefs (Knight, 1999), religion and religious fundamentalism (Hall et al., 2008; Kellstedt and Smidt, 1996), ethnic background and race (NRC, 2004; Stephan and Stephan, 2000), and education have all been conducted using a variety of operational descriptions. In a similar vein, scholars who study LGBT communities find it difficult to describe the groups' gender and sexual identities, let alone come up with practical methods for implementing these ideas.

Research varies not just in what components of sexual orientation they assess, but also in how those aspects are defined operationally. The existing absence of well-defined metrics increases population estimate volatility and complicates study comparisons. For instance, two studies that define sexual orientation functionally in terms of sexual behaviour may come to different conclusions about the target population if they screen participants using different time frames (e.g., one study may use the criterion of any same-sex sexual conduct within the previous 12 months, while the other study may use any identical-sex sexual behaviour since age 18) (Shah, et al., 2018).

Moreover, the study samples employed in both investigations would exclude any individual who did not participate in sexual activity within the designated timeframe, irrespective of their same-sex attraction or classification as lesbian, gay, or bisexual (Tufekci, 2014). Studies may yield seemingly contradicting results due to the variation in criteria used to operationally determine sexual orientation. It may seem apparent, but when publishing findings, researchers must clearly state how they measure procedures and carefully consider if the operational definition(s) of gender identity are appropriate given the topic matter question they are addressing.

Asking someone if they are transgender could lead to underreporting and false positives because some gender-variant people do not use the term "transgender" to identify themselves and non-transgender people might not fully comprehend it (SMART, 2009). Several studies have addressed these problems by giving respondents a definition of "transgender" in order to improve the validity of their answers (e.g., Roger 2007). The findings of cognitive interviews with a small nonprobability sample (n = 30), which included transgender youngsters, are presented by Conron and colleagues (2008). It was found that most transgender youth could select an appropriate response option when they were asked a question that combined biological sex and gender, asking respondents if they were "female," "male," "transgender, female-to-male," "transgender, male-to-female," or "transgender (not exclusively male or female)." However, more testing

with only slight query modifications is advised by the authors (Conron et al. 2008). Furthermore, gender transition has been the subject of certain studies (Nemoto et al., 2005; Xavier et al., 2007).

Studies pertaining to transgender individuals exhibit comparable definitional and quantitative diversity. For gender variance and nonconformity, there are yet no generally acknowledged optimal measurements. Asking participants if they identify as transgender and, in certain cases, whether they also self-identify as female-to-male or male-to-female is a popular method (Almeida et al., 2009, for example). This is a commonly asked question that follows one regarding sexual orientation.

Researchers frequently have difficulties when examining sensitive themes such as money, illicit activities, sexual behaviours, and marginalised populations. Participants may be hesitant to share accurate information due to privacy concerns, disclosure ramifications, or social desirability. This can diminish overall response rates and render the sample less representative. Some of the marginalized people hesitant to reveal their identity; they might be resulting of infection with HIV and risk while having sex with men (Edelmann, 2020).

Ali (2016) highlighted the identities and experiences of intersectionality of gender, religion, sexuality and status, in Pakistan. On the other hand, Khusro and Shoukat (2020) explored the role of cultural norms and patriarchal elements in perpetuating discrimination against LGBTQ+ individuals.

In one of the articles, Ahmed in 2018 conducted research on the strategies adopted by LGBTQ+ activists and organizations who are advocating for legal reforms and social acceptance. While, Nawaz and Hussain in 2023, analyses the role of digital activism with social media platform in mobilizing support for LGBTQ+ rights in Pakistan.

In 2017, Alm, & Martinsson in one of their articles investigated that what are would be the influence of LGBTQ+ movement and transnational solidarity network, globally, ion activism. However, the study of computational sociology has emerged as a revolution in cultural studies, offering new insights into cultural dynamics, identity formation and social acceptance. The research on computational sociology, cultural pattern and collective behaviour is done by Sato in 2024. Eickers in 2024 explores computational methods for study different cultural phenomenon such as cultural practices, symbols, meaning and the language use. In 2017, another research is done by Kumar, and Dhanya who examined the uncover hidden patterns, correlations and trends within diverse cultural datasets.

Marco, et al. in 2020 analysed the identifying patterns of machine learning algorithms and predicted cultural dynamics. In 2019 Li et al. proposed a framework for analysing cultural studies regarding computational sociology to analyses large-scale cultural datasets. However, in 2022, Furman discussed different methodological and ethical challenges while investigating cultural analysis. L., V., & Bhatt conducted research to explore the use of computational methods for studying digital archives, cultural preservation and cultural heritage.

Sieck et al, in 2010 investigated a research based on the application of network analysis mapping cultural networks and diffusion processes. However, Edelmann et al. in 2020 examined the implication of computational sociology for redefining cultural research paradigms and different applied methodologies. While Martinho discussed (2018) about the potential of different computational approaches regarding cultural studies; cultural evolution; and cultural identity.

There have been many research works on the issues of LGBTQ+ movement; rights; computational sociology, and cultural studies, however the implication of computational sociology on LGBTQ+ is unique, which is still missing; this is the aim of this study.

Methodology

The methodology of this paper of the qualitative approach having computational sociology applied on LGBTQ+ rights movement in Pakistan. The study employs purposive selection to ensure tools to extract a keen insight through Butler's Queer theory on social media data. The study also uses network analysis to map and analyse the online groups and networks of LGBTQ+ activists and allies.

Qualitative analysis is used to detect patterns, trends, and correlations in data. Ethical issues are prioritised, with informed consent sought and identities anonymised. Thematic analysis would be the technique for analysing the discourses used in social media platform for gathering the responses and insights; this will enable a comprehensive understanding of the socio-political and psychological behavioural contexts for LGBTQ+ rights movement and activism in Pakistan.

Furthermore, for analysing the data gathered in computational analysis, from digital platform, would be investigated by text-mining technique within online and offline discourses of the society. This analysis of sentiments would assist to understand the emotional tone of the conversations having discourses regarding LGBTQ+ individuals, which also having insights into public perceptions and sentiments. In addition, network analysis would also be the part for analysing the data while employing the pattern of online groups and networks of LGBTQ+ allies and activists. This technique would also help to identify the influencers, and the key actors for supporting the structure of network within the social reforms of movement, and also provide a detailed map of social connection and psychological interconnection.

The study spans three months duration for research division by every researcher participated; which is includes different phases of initial data collection; computational analysis, and thorough analysis of the data gathered from social media network. This timeframe allows for an in-depth investigation to explore the evolving dynamics of the LGBTQ+ rights movements and the activism in Pakistan, within the specified time-period.

Findings

The examination of the existence of LGBTQ+ right movement through social media discourse represented by Butler's Queer theory revealed several key insights. In Pakistan, there are a variety of opinions and perspectives for the evaluation of the movement. There are a mixed sort of acceptance, as at one side, the sentimental analysis indicates strong support, while on the other side, some negativity and resistance is also found.

Text mining qualitative analysis allowed for the recognition of prevalent discussion and acceptance of legal rights, social acceptance, and religious perspectives. This is mostly because of social media and the flexible minds of young generations. Overall, social media is the platform, serves or assists the expressions of diverse views on LGBTQ+ rights in Pakistan. There are the individuals who contribute to play an important role in shaping the discourse and mobilized the supporting environment for LGBTQ+ right.

The movement activists, community leaders, and legal aliens are the key actors who are responsible to advocate the rights and challenge discriminatory practices. It is their efforts which raise awareness and driving positive change within Pakistani society. Networks and partnerships with social justice movements and advocacy organisations are critical for amplifying marginalised voices and lobbying for policy change. The attitude of LGBTQ+ issues in Pakistani culture is diverse, with younger generations and urban people increasingly accepting them. Cultural standards, religious beliefs, and education all have an influence on public opinion.

Discussion

A basic feature of human nature that establishes a person's identity as a man or a woman in society is gender. Anatomical sex and one's concept of gender are not the same thing, despite what the general public believes. Gender in the head and sex in the legs occur at different periods in different parts of the body (Abbass et al., 2014). People who exhibit socially constructed and acceptable gender 'atypical' behaviour that deviates from society's dimorphic norm and who transcend the dual categories of man or woman, feminine or masculine, are frequently ignored by society (Agarwal, 2016). People are compelled by social circumstances to possess one or the other, but not both. These ideals were created by ancient people and transmitted via their families and civilizations (Abdullah et al., 2012).

The concept of transgender refers to anybody whose gender appearance or identity deviates from the socially acceptable standard. The American Psychological Association defines transgender people as those whose gender identity varies from the sex given at birth (APA, 2019). As a result, it is a natural phenomenon rather than a sickness. Alas! This took longer to manifest on a larger scale, and the World Health Organisation recently removed it off the list of mental illnesses. Some culturally sensitive societies still deny that they exist as man and woman, hence they are commonly referred to as the "third sex"

Although they have equal rights, transgender people do not receive compassionate treatment. They are compelled to isolate themselves from the outside world since they are not accepted as members of human civilization. Numerous instances of violence against transgender people have been documented, and studies show that these episodes lead to a variety of problems, such as physical harassment, mental illness, gang rape, sex assault, and suicide thoughts (Testa et al., 2012). When someone is brutalised like this, they go through a lot of pain. A few of these include emotional collapse, which exacerbates mental illness. Victims may experience loneliness, depression, and mood swings. Molestation rates and physical well-being are also significantly impacted by violence (Meyer, 2012).

Transgender individuals are fired from their employment and forced to flee their homes. They are frequently denied help by police, medical providers, and government agencies. The toilet is the most common location where transgender people confront harassment and violence. These basic public and working amenities are also unsafe for them. Despite many countries' calls for rights, social behaviour remains constant. The only attempt to count the number of transgender people in the country was in 2009, in Punjab and Khyber Pakhtunkhwa province. Out of a huge population, there were 2167 and 324 registered transgender people (Ming et al. 2016).

Even though transgender persons are becoming more visible, they still have a hard time figuring out how to fit into conventional gender roles. People who identify as transgender experience stigma and discrimination, which makes their families reject them. They are also pressured to define their identity in gender binary terms and act like either a man or a woman. If they don't comply, they are placed in a transgender community where they are supported by a guru (Khan et al., 2014). Their absence from families causes division and unrest among others, which breeds prejudice. In Pakistan, transgender people face social exclusion and lack of support (Khan, 2015). The illiteracy, poverty, injustice, lack of opportunities, cultural and social boycott, power imbalances in relationships, and obstinacy of religious leaders are some of the factors contributing to the social marginalisation of this society.

Aside from that, their animosity is increased by their incapacity to procreate and face their sexual orientation. They experience neglect, shame, and discrimination on a daily basis as a result of their cultural, physical, and social traits. Some cultures forbid them from participating in religious activities, while others believe they are endowed with supernatural abilities. They can't locate a safe area to study as a result, which lowers the quality of their education. Although a 2014 UNAIDS research indicated that 42% of transgender sex workers were uneducated, transactivists believe that 98-99% of Pakistan's transgender community is illiterate (Rao, 2019). According

to a Larkana research, 67.8% of the hijra population lacks formal education. Furthermore, Pakistani institutions do not have any quotas for them.

Even if some of them want to go to school, they have a lot of challenges ahead of them, such choosing a group, registering, and answering questions from people in their neighbourhood. Since social antagonism and discrimination hinder them from enrolling in educational institutions, they are forced to engage in unlawful activities that are disapproved of by mainstream society, such as prostitution, performing arts at weddings or childbirth, and begging for change (MTK, 2020). Because they are not employed in domestic work, child care, or other occupations for which they could easily pick up the necessary skills, they are forced to live in situations where putting these precautions in place becomes an easy decision.

Because they have experienced such extreme isolation from their families and communities, transgender people are at high risk for health problems.

These concerns include drug use, psychological issues, and an increased risk of contracting HIV and other STDs. Thirty-one percent of transgender non-sex workers and forty-five percent of transgender sex workers in Pakistan admitted to using drugs or alcohol. Furthermore, nearly 71% of transgender sex workers who use injectable drugs have had intercourse with other drug users, and up to 33.7% of them did not use a condom during their most recent coitus with customers. 84% of the 409 respondents to the survey acknowledged selling sex; 94% could name a condom, although 42% said they had never used one; 58% reported having STIs; and 38% reported having multiple infections. The two most common infections were gonorrhoea (18%) and syphilis (50%) respectively. Three percent suffered vaginal ulcers, one percent had ureteral discharge, and seven percent had inguinal lymphadenopathy. They were all connected to both physical maltreatment and frequent condom use.

Transgender individuals who work in the sex industry start working at the age of 17. They work as prostitutes and make PKR 10,000 a month. About 57% of transgender employees said they had engaged in unpaid sex, while only 13% of transgender sexual workers and 10% of non-sex employees said they regularly used condoms, making them vulnerable to STIs. About 35 percent of transgender individuals had taken an HIV test, and 43 percent were aware of where testing could be obtained. There was a 7% prevalence of HIV. WHO reports that since 2010, there has been a 45% rise in new HIV infections in Pakistan. Officials believe this is because HIV is more common among high-risk groups, including drug users, transgender individuals, prostitutes and their customers, and men who have sex with men (Saeed, 2018).

Furthermore, transgender individuals face violence and harassment not just from their families but also from places of employment, educational institutions, and religious authorities. 300 assaults and 46 fatalities were recorded in Khyber Pakhtunkhwa in 2016. In a similar vein, more than 82% of transsexuals report having experienced sexual assault as children. Of them, over half reported having been beaten, strangled, or threatened with a weapon, such as a knife; another 56% claimed to have been tricked or forced into having sex against their will. People who identify as transgender experience psychological and physical assault from others, which compromises their mental health even as their physical health is still in danger.

Despite the fact that these challenges shock society and highlight how difficult their lives are, there are also some incredible tales of people who have surmounted social hurdles and are living fulfilling lives while staying loyal to their identities. In addition to transgender newsreaders, hair stylists, fashion designers, interior decorators, and trans activists who are fostering their community, they include the first transgender model from Pakistan. They have demonstrated that transgender identity is an identity, not a disability.

Analysis of social media data

In 21st century, social media has become a represented platform which has easiest to access for everyone. It gives freedom of speech to the users, though some of them are misusing, though the actors of the LGBTQ+ movement made it a constructive use to raise the voices of the marginalized' voices; which is connected to every user's mind. This research paper delves into examining social media data regarding the issues of LGBTQ+ and its significance in digital media platforms in shaping the mindsets of the public via discourse, mobilization, and visibility for marginalized communities. The media platform is a tool provided for the advocacy and deliverance of individuals' spaces and stories, challenged by stereotypes and mobilizing support for rights.

To find relationships with LGBT people or to create friends, use Twitter, blogs, and vlogs. E. Pingel et al. (Pingel et al., 2013) claim that social media has been used by the LGBT community. It is a route for information sharing among their members, particularly on forums and blogs dedicated to them. These forums would enable heterosexual men or perplexing women to research identity, role, and LGBT issues. A Tumblr study on young intimacy also discovered the advantages of social media use for LGBT relationships. Relationships between LGBT people have been forged on Tumblr because of the community's open welcome and sense of self-belonging. The LGBT community has found it easier to establish relationships inside their community and use microblogging as a dating strategy (Hart, 2015).

There can be some online viral campaigns with hashtags; however, the movement actors are amplified by their messages and reach a broader audience (Johnson et al., 2019). Investigating hashtags such as #LGBTQPakistan, #QueerRightPK, and #ProdePakistan on Twitter are prominent sources of actors with identifying trends, sentiments, and discourse in Pakistan.

Computational sociology is helpful in analyzing social media data from the vast amounts of online content. Edelmann et al. (2020) remark that this sentimental analysis technique enables researchers to engage people's thinking about the basic rights of the LGBTQ+: positive, negative, or neutral. These hashtags trends receive both positive support and opposition from the society of Pakistan (Eickers, 2024)

Research done by Gomez et al. (2021) offered a platform to investigate the interconnectedness of LGBTQ+ communities to the online availed voices. 10418 transgender persons are registered in Pakistan, despite the fact that there is a sizable transgender population there, according to the 2017 Pakistan Bureau of Statistics census data (PBS, 2017). The Pakistan Khawaja Sira Society, which advocates for the rights of transgender individuals, disputes the census results and asserts that the country is home to between 300,000 and 400,000 people. As per the 2018 report by Human Rights Watch, transgender individuals in Pakistan are among the marginalised groups in the nation. They lacked the right to identity until May 2018, when a bill ensuring their fundamental rights was passed by the Pakistani parliament (Miles, 2018).

However, they now have identification rights granted by the Pakistani government. Nevertheless, there are limited career prospects for them; the majority of them dance, work as prostitutes, beg, or work privately. Regrettably, because of their gender, society's behaviour is contradictory. Transgender people are frequently the target of abuse, torture, mockery, and other forms of mistreatment (Ahmed et al., 2020). However, the third gender is viewed negatively by society; even their parents, siblings, relatives, and friends feel differently about them than they do. Due of their gender, parents typically throw them out of the house and refuse to let them use the property. The Pakistani government shares the same attitudes about transgender individuals as the general populace. They have been denied access to work, healthcare, and education, among other essential rights (Faheem, et al., 2024).

There are many sources of platforms like YouTube, etc; however, a researcher can categorize the online movement and demands for rights into different sections through qualitative analysis in Pakistan. This valuable perception of the attitude towards marginalized communities is diverse in opinion based on sentiments, discourse, tone, and content within the society of Pakistan. By examining the online social media data, we see that there are different platforms, such as Reddit, where user-generated content and discussion reveal diverse patterns of discrimination, resilience, and support within the online community.

In the past, transgender individuals have not faced stigma in Indo-Pakistani culture or the Subcontinent. It is exceptional that transsexual Muslims have historically participated actively in society. Their sense of self diminished, and their level of exclusion increased with the introduction of British colonists. Laxmi Narayan looks into the effects of colonialism on transgender people's lives in the Subcontinent.

The way of the Khawaja (master). Before the advent of Europeans in India, Hijras [a term used in South Asia to denote a transgender person] were trusted by society. They were soldiers, guardians of harems, and advisors to kings, but the Europeans could not understand them and drove them to the periphery of society (Khuhro & Shoukat, 2020).

Minorities, including LGBTQ+ communities and individuals, commonly use social media to engage in online discussions, discussions, and activities such as seeking support from others, sharing information, and keeping up social relationships. A recent survey found that LGBTQ+ people are more engaged on the internet than their cisgender counterparts.

Several statistical studies have looked into the effects of internet use on the LGBTQ+ community. According to a new study, social media networks are the most effective tool for LGBTQ+ children to actively come out, with the internet providing a safe haven. Furthermore, researchers analyzed social media data to gain a better understanding of COVID-19's impact on LGBTQ+ populations, mental health, and online conversations concerning LGBTQ+ healthcare treatment.

Social media platforms have become integral to contemporary social movements, providing a space for advocacy, mobilization, and community building. In the context of LGBTQ+ rights movements in Pakistan, the analysis of social media data offers valuable insights into the dynamics of activism and the challenges faced by LGBTQ+ individuals in the country.

The Datareportal website states that 37 million people in Pakistan utilise social media. Facebook is used by the majority of them (Datareportal, 2020). Numerous researches are done on Pakistani citizens' usage of social media. However, no study has been conducted on how transgender people use social media in this country. The purpose of this study is to ascertain the social media usage patterns of transgender people in Pakistan.

E. Selkie et al. (Selkie et al., 2020) state that social media platforms serve as transgender youths' community centers. Transgender youth may not otherwise have access to the emotional, medical, and informational assistance that these groups offer. Additionally, the results of the study on transgender people's purpose use of social media revealed that the majority of respondents wanted to build their social identities and become more gregarious. The results presented above corroborated those of earlier research (Janzen, 2017). Furthermore, research on how transgender individuals pass the time on social media revealed that a larger percentage of transgender persons—48.7 percent—enjoy themselves by posting images and messages on their walls, while 23.1% find amusement in amusing films and videos.

Additionally, researchers found that LGBT people, in particular, were early online technology adopters (Grov et al., 2014). According to the results of the study on the types of information transgender individuals obtain from social media, 41% of respondents said they use it "to get information regarding social events" and "to get news and current circumstances." It was demonstrated that transgender people use

social media to stay updated. Furthermore, transgender individuals in Hyderabad did not appear to be monitoring government activities on social media, according to the results of the following government activities posted by transgender individuals on social media.

Furthermore, the results of the study on transgender people's use of social media to obtain information about their surroundings revealed that a larger percentage of respondents—34.9%—occasionally obtain information about their surroundings. Lastly, the trend of transgender individuals learning about political leaders' actions through social media revealed that a larger percentage of transgender people learn about political leaders through social media (Nawaz & Hussain, 2023).

Insights gained from computational analysis techniques

Researchers using computational analysis have discovered key concerns, obstacles, and opportunities in Pakistan's LGBTQ+ rights movements, influencing policy suggestions, community-building programs, and lobbying tactics. Nevertheless, methodological drawbacks include the possibility of bias arising from social media data and the possibility of ignoring complex cultural circumstances in LGBTQ+ discourse (Saad, 2021).

Furthermore, ensuring the accuracy and reliability of computational analysis techniques required careful calibration and validation against ground-truth data. To address the identified limitations, future research should adopt a mixed-methods approach that combines computational analysis with qualitative methods such as interviews, focus groups, and participant observation (Ahmed et al., 2021). This hybrid approach can provide deeper insights into the lived experiences, perspectives, and aspirations of LGBTQ+ individuals in Pakistan. Researchers should engage with stakeholders like legislators and LGBTQ+ activists to ensure the applicability of findings and use robust validation protocols and open methods to enhance data quality. Working together with social media networks can yield extensive datasets that respect ethical and privacy norms. Evidence-based advocacy, policy, and social change projects will be informed by this (Seidman, 2002).

By understanding the socio-political dynamics and public attitudes towards LGBTQ+ issues, policymakers can formulate policies that promote equality, non-discrimination, and social inclusion (Khan et al., 2019). Moreover, the mapping of support networks and alliances within the LGBTQ+ movement can facilitate collaboration between civil society organizations, government agencies, and international stakeholders in advancing LGBTQ+ rights at local, national, and global levels (Khuhro & Shoukat, 2020).

This research promotes social change by highlighting LGBTQ+ experiences and resilience in Pakistani society, challenging heteronormative narratives through dissemination via social media, academic publications, and community engagement initiatives (Jaspal & Cinirella, 2010). This increased visibility and advocacy can lead to shifts in societal attitudes, norms, and behaviors toward greater acceptance, tolerance, and support for LGBTQ+ rights.

In the digital age, computational sociology study presents opportunities as well as obstacles, enabling scholars to explore intricate social processes and unearth hidden patterns. It also makes it more difficult to guarantee the authenticity and integrity of data from online sources like social networking sites and digital archives (Kitchin & McArdle, 2016). The use of digital data raises ethical concerns related to privacy, consent, and data protection. Researchers must navigate ethical dilemmas associated with data collection, storage, and analysis, ensuring compliance with ethical guidelines and safeguarding the rights and confidentiality of research participants (Boyd & Crawford, 2012).

Computational sociology research involves interdisciplinary collaboration and expertise in various methodologies, such as statistics, computer science, and social theory, to study complex social phenomena. Integrating different disciplinary perspectives and methods presents challenges in terms of theoretical coherence and methodological rigor (Healy & Moody, 2014). Data analytics enable researchers to analyze vast amounts of digital data in real-time, but managing the scale and scope of data presents challenges in terms of computational resources, algorithmic complexity, and interpretability of results (Lazer et al., 2009).

Computational sociology opens up new avenues for exploring research questions that were previously inaccessible or understudied. By analyzing digital traces of human behavior, researchers can investigate emergent phenomena, cultural trends, and social dynamics with unprecedented granularity and depth (Lazer et al., 2020).

Advances in computational methods and machine learning algorithms offer powerful tools for analyzing complex social systems and predicting human behavior. By leveraging computational techniques such as network analysis, text mining, and natural language processing, researchers can uncover patterns, relationships, and structures within large-scale datasets (Barabási, 2016).

Comparison with traditional cultural studies approaches

In Pakistan, there are traditional terms such as Khawaja Sira, Hijra, khusras, zenanas, and eunuch for people who do not identify as cisgender. In more recent times, the terms "transgender" and "transsexual" have become widely used alongside "third gender." They have been the object of discrimination, mistreatment, and other forms of maltreatment since the colonial era. Transgender people in Pakistan have fought for the legal acceptance of their gender identity and expression for many years. Nonetheless, the Supreme Court of

Pakistan made its first ruling pertaining to transgender rights in Constitutional Petition No. 43 of 2009. The legal system in Pakistan has acknowledged the non-traditional gender identity of transgender people.

The Supreme Court received Constitutional Petition No. 43 of 2009, also known as *Dr. Muhammad Aslam Khaki and Others vs. S.S.P. (Operations) Rawalpindi as well as others* (2013) PLD 188 (SC). In the ensuing three years, the Court issued several orders compelling the government to respect the gender identity of transgender individuals and take appropriate measures to protect their fundamental rights. Ten years of legislative developments in Pakistan, prompted by these directives that sought to safeguard the rights of transgender people, culminated in the Transgender Persons (Protection of Freedoms) Act of 2018 (Khan, 2021).

The impact of these legislative changes on the status of transgender persons gained by society or legal reforms is examined in this part, taking into account the history of marginalization of transgenders and the government's failure to protect their rights. The next section defines some terms used in the introduction, such as *Khawaja Sira* and *Hijra*, which allude to the indigenous gender identities created by non-conforming people. The persecution that these people have faced throughout history is examined in the section that follows, starting with the colonial era. The section argues that the marginalization of transgender people by colonial authorities has had a detrimental impact on their lives ever after independence. Section 5.4 delves deeper into the case law safeguarding transgender rights by analyzing the Supreme Court's orderly response to Constitutional Petition No. 43 of 2009 (Alizai, 2022).

People who participate in gender-specific activities create their gender. These actions are typically not premeditated or intentional; rather, they are part of everyday rituals that perpetuate gender norms, such as putting on pants, skirts, or makeup or referring to someone as "he" or "she." Butler argues that gender is determined by our behaviors and how other people in society treat us, not by some ingrained identity we possess. According to Butler (1988: 527), "Gender reality is theatrical, which means it becomes real to the extent it is done." This might be seen as "acting out gender" as opposed to "being" gender. Gender identity development is an interactive process that is defined as "doing gender" (Holliday, 2007). Gender identities are then thought to reflect and emerge organically from physiology. Gender is expressed in relation to gender norms; it might be expressed in opposition to them, in agreement with them, or in some other way. Whether a subject is a conformist or a transgressor depends on how closely they adhere to a gender norm.

Scholars who identify as queer oppose the concept of permanent gender identity. Butler believes that a person's identity is formed by the 'doing' and accomplishments of their gender. A fundamental identity has emerged as a result of our gendered behaviours. Butler contends that gender is a cultural construct rather than an actual "thing." This illustrates how cultural norms uphold and perpetuate beliefs about gender identity and gender differences. Butler's perspective on gender as a social construction implies that gender is not based on "material bodily realities" but rather is flexible and subject to interpretation. Delinking sex, gender, and sexuality is a crucial part of queer theory since it shows that there isn't a linear, biologically consistent relationship between these characteristics (Lind, 2009).

The lines separating 'male' and 'female' bodies are actually far hazier than previously thought, according to numerous scientific research. The bodies of intersex individuals defy simple classification as male or female (Zimman, 2014). According to Richards et al. (2016), there is always more overlap in psychology between "men" and "women" than there is a difference.

Conclusion

The exploration of LGBTQ+ rights movements in Pakistan through a computational sociology approach, coupled with a cultural studies lens, has provided valuable insights into the dynamics of activism, representation, and challenges faced by the LGBTQ+ community in the country. It is computational sociology which helped to analyze the pattern, trends, and social dynamics used for forming the LGBTQ+ rights movement for advocacy and activism in Pakistan. There are many factors that influence the examination of social media data functionalizing with the digital media platform while promoting society in a progressive way. It would also help to investigate the status of advocacy, coordinate campaigns, and elevate the voices of the LGBTQ+ community's marginalized members.

There are many factors that illuminate the LGBTQ+ movement in Pakistan, such as intersections of identity, psychological behavior, religion, and socioeconomic networks. These factors are identified by major actors of social support and influencers. It is computational sociology that can act as a bridge between the hypothesis and the conclusion, addressing issues faced by the LGBTQ+ community in Pakistan and promoting empowerment and social acceptance. By researching through some experiences and voices of LGBTQ+ persons in Pakistan, the contribution can be developed for more inclusive, equitable, and right-based policies and practices, ultimately working towards a more accepting and tolerant society.

Finally, it can be declared that the exploration of the LGBTQ+ rights movement in Pakistan through the lens of computational sociology is developed for complexities, challenges, and opportunities during the struggle for justice and equality. By driving the cultural insights with computational analysis, the researchers have provided a comprehensive understanding of LGBTQ+ activism in Pakistan. This research will contribute to the ongoing efforts for social justice and getting basic human rights for transgenders regardless of sexual orientation, behavioral change, or gender identity.

Future recommendations

There are some recommendations for the future researchers included:

- Future studies should be based on considering expanding the geographical scope beyond Pakistan to include a comparative analysis of the LGBTQ+ movement in South Asian society.
- Research work can be done on the impact of social norms on the evolution of LGBTQ+ rights over time. This would help to analyze the social, political, and cultural impact on societies with the progress and setbacks.
- A report can be created by a wider range of data sources, governmental and nongovernmental organizational reports, which would provide a more comprehensive view of the movement's public perceptions and dynamics.
- It can be applied through advanced computational techniques such as machine learning algorithms for sentiment analysis and predictive modeling. This would enhance the accuracy and depth of the analysis of social media data and other large datasets.
- It is also essential to investigate the impact of specific policies and legal frameworks on the LGBTQ+ community in Pakistan. This study would provide valuable insights into which legislative measures are most effective in advancing LGBTQ+ rights.

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