



From Caterpillar to Butterfly: Social Media Engagement of the Socially Excluded Third-Gender People in Bangladesh

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Abstract

This paper focuses on the effects of gender diversity – in terms of binary- and third-gender – on social media engagement (SMEn). Specifically, we examine the extent to which SMEn's antecedents and outcomes vary between binary- and third-gender people. Based on the *uses and gratification theory (UGT)*, we develop and validate a model using two cross-sectional studies. Data have been collected from heterosexual and third-gender people (TGP) separately, and analysed with the structural equation modelling (SEM) technique. Our results show that the incentives and outcomes of SMEn are not identical across different gender groups; rather, socially excluded TGP take advantage of social media differently than their heterosexual counterpart. More specifically, *habit* is the strongest predictor of SMEn for the heterosexual group, which is *emotional reassurance* for the TGP. Interestingly, *identity management* is an important determinant of SMEn *only* for TGP, while *social interaction* is important for both groups. We further find that SMEn enhances both groups' quality of life and social self-esteem but more for TGP. This study advances knowledge by applying UGT in a new research setting within information systems. The findings provide guidelines to social media architects and policymakers on engaging socially disadvantaged people with social media and enhancing their social wellbeing.

Keywords Social media · Social exclusion · Third gender · Uses and gratification

1 Introduction

Most cultures understand gender as a binary term; however, some people do not belong to the archetypal male–female gender options. Their sexual orientation differs from their heterosexual counterpart (Escobar-Viera et al., 2018), and thus are categorised, either by themselves or by society, as the ‘third gender’. The term *third* refers to “other” that includes lesbian, gay, bisexual and transgender (LGBT) and gender-diverse communities.¹ The third-gender (TG²) communities are highly excluded from society, specifically in Asian countries (Badgett, 2014; Han et al., 2019), and do not have access to human and citizen rights, e.g., health, shelter, and education. They are practically not allowed to live

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¹ In some countries e.g., Bangladesh and Pakistan, the term ‘third-gender’ refers only to the ‘effeminate male’ (i.e., *Hijra*) who are born as male but later emasculate/castrate themselves, or undergo hormonal treatment to become ‘transgender or trans-women’. However, other countries e.g., India use ‘third-gender’ category to recognise transgender people including Hijras (an umbrella term to capture any gender other than male or female) (Kumar, 2019); and our study adopts the latter approach.

² Not to confuse TG with ‘Transgender’ and ‘Gay’.

their everyday lives and are deprived of their socio-political-cultural- and religious rights (Mushtaq, 2018). Subsequently, they become vulnerable and exposed to high risk for depression, bullying, and suicidality (Baams et al., 2015; Lester, 2006; National LGBTI Health Alliance, 2016).

With the proliferation of inexpensive smartphones and mobile telecommunication-based Internet services, the use of social media has been spurred in the last few years (Chaffey, 2019). On social media platforms, recently, an exponentially profound gender revolution has been evident (Kapoor et al., 2018) that recognises disparities among people based on gender (Adkins et al., 2018). These platforms accommodate both conventional heterosexual binary-gender (BG) and TG user groups. In particular, the third-gender communities (TGC) find it as a novel mechanism for social, emotional, and informational support that they do not encounter offline (Brammer, 2017). Consequently, social media is extremely popular among TGC (Han et al., 2019).

Recently, Lupton and Southerton (2021) discussed the importance of understanding social media within the broader context of people's everyday lives. They suggest that the use of social media is not 'monolithic' but rather, "we have sought to demonstrate that Facebook is many things, generating diverse forms of thing-power. It is a different phenomenon for each user, as they intra-act with the platform's affordances in diverse ways. The always-emergent Facebook assemblage incorporates people's feelings, bodies, histories, sedimented habits and inclinations, and the material conditions in which these encounters take place" (p. 982). In light of this, there is a need to understand better if the antecedent drivers (i.e., determinants) of social media engagement (SMEn) differ between BG and TG user groups in the context of social exclusion. The context of social exclusion (the 'material conditions' that Lupton and Southerton refer to) allows us to understand social media use better. However, "Fewer studies have focused on social media use among non-traditional" users (Blackwell et al., 2016, p. 612); thus, research gaps remain to be fulfilled.

The extant literature has identified different TG user groups on social media other than the conventional heterosexual BG. Studies also argue that the use motivations (e.g., Adkins et al., 2018) and use (e.g., Escobar-Viera et al., 2018) of social media of these groups may vary. Yet, we have little empirical evidence on how the motivations differ between these two distinct user groups (Escobar-Viera et al., 2020). Precisely, Craig et al. (2021) point out that research comparing third-gender people (TGP)'s use of social media to their BG peers is "limited". Nonetheless, the recent work of Kaiser et al. (2021) claim that there are 'many difference' in social media behaviour between heterosexual and sexual minority users. Such research can provide us with more closely scrutinised theoretical and practical meanings and help us better understand the nobility of social media.

In addition, while many TGCs have used social media for more than a decade and spend much time daily, research on the outcomes of their SMEn is anecdotal and sporadic (Craig et al., 2021). With the increasing popularity of social media among TGC, it is valuable to investigate if it brings positive effect for those in countries like Bangladesh, China, and India, where the government maintains an official silence and the society imposes restrictions on TGP's rights (Wu et al., 2018).

Against this backdrop, we seek to know:

What are the antecedents and consequences of social media engagement by third-gender people, and to what extent do these vary from that of heterosexual people?

This study proposes a conceptual model drawing on *uses and gratification theory (UGT)* to answer the question. UGT is an approach to understanding why and how individuals actively seek out and use media to satisfy specific needs. However, as this theory has been developed from and applied in an ideal world without discrimination among information users, we investigate if the relationships of UGT vary concerning gender diversity, i.e., between TGC vs BG communities (BGC). We have collected data using two cross-sectional studies to test and validate the research model and analysed the data with partial-least-square-based structural equation modelling (PLS-SEM). This study illuminates the unique role of information systems (IS) by demonstrating how a technology-enabled social platform empowers disadvantaged and socially excluded people and enhances their wellbeing.

The remainder of the paper proceeds as follows. The following section describes the context of the study and briefly presents relevant literature on SMEn by different types of users. The third section describes the research model and develops the hypotheses, then explains the methodology used to test the research model empirically. The fifth section presents the results of the data analysis. The final section discusses practical implications, theoretical contributions, and limitations.

2 Background

2.1 The Study Context: Third-gender People and Social Exclusion

Third-gender people are neither men nor women (Khan et al., 2009), even though they may be born as either. However, during adolescence, their physical gestures and behavioural patterns start becoming opposite to the gender they got at birth, e.g., men start becoming feminine. In South Asian countries, specifically Bangladesh, Pakistan, and India, their families force and torture them to act 'normal' as heterosexuals and eventually compel them to leave home

to avoid social embarrassment of the family (Knight, 2016). At the same time, the educational institutions undermine and mock them and force them to drop out (Arumai et al., 2014; Khan et al., 2009; Shahid, 2021). Eventually, they take shelter in 'Dera'³ with same-kind people. Through a cultural adoption ritual (called 'Achla'), a TG person becomes a disciple ('chela') of a 'guru'⁴ (Knight, 2016) and starts a new life as a *hijra* where the guru forces them to earn money through either 'badhai'⁵ and/or sex work in exchange for food, shelter and security (Abdullah et al., 2012; Arumai et al., 2014).

"Hijras are one of Asia's most vulnerable and impoverished populations" (Al-Mamun et al., 2022, p. 2). In a conservative society (e.g., Bangladesh, Pakistan, and India), steeped in traditional orthodox values, accepting and protecting the rights of the gender-diverse population is remaining as an 'area of darkness' (Khan et al., 2009; Knight, 2016). Even though the constitution of many South Asian countries officially recognises the TGC, their fundamental human rights are still denied in practice (Knight, 2016). For example, in India, hijras are highly discriminated against and often excluded from employment, housing, and health care services while they face severe violence (Arora, 2019). Similarly, genders other than male–female are still considered a sensitive topic in China under the 'three-No policy' (i.e., 'No support', 'No prohibition', and 'No promotion') (Wu et al., 2018). The third gender is not supported by Chinese traditional culture, where the government and law maintain an official silence on their rights (Luhur et al., 2021; Wu et al., 2018). They suffer discrimination in employment and education (Luhur et al., 2021). For a summary of the legal and societal acceptance of the third gender in South Asian countries, see Table 1. It summarises that the TGC is socially excluded in South Asia (Amundsen, 2018) and is overtly discriminated, harassed and often tortured (Arumai et al., 2014; Badgett, 2014). For generations, these "people have been subject to institutional and social discrimination, and to violence based on their sexuality, gender identity and gender expression" (UNDP, 2015, p. 7). Consequently, people belonging to the outside binary group often avoid exposing their gender identity. However, literature is scarce explaining how emerging digital technologies in general and social media in particular, assist some of these communities to express their gender identity and get social interaction and support.

³ A local name for the dwelling place.

⁴ A term used for the head of a hijra cluster of a certain area. In Bangladesh, gurus have their own area demarcation and maintain a central hierarchy.

⁵ A traditional way of collecting money in groups from shops, houses and mass people.

Table 1 The existing legal and social condition of the recognition and acceptance of third-gender communities in South Asian countries

Country	Legal/constitutional condition	Societal condition
Afghanistan	No legal recognition of the third gender. LGBTI people face legal challenges and institutional discrimination (Pundir, 2022)	LGBTI people face discrimination, arrest, assault, and rape by 'society and police' (Bureau of Democracy, 2020)
Bangladesh	Since 2013, the government has recognised the 'third' gender (i.e., hijras) as a separate gender. They received voting rights in 2019 (Sriiraam, 2022)	TGP face abuse, are highly discriminated and excluded from human rights, including health and education (Al-Mamun et al., 2022; Aziz & Azhar, 2020; Shahid, 2021)
Bhutan	No legal recognition of TGP. However, the government recently is "accepting" the LGBTI communities (Godbole, 2022)	Civil society is becoming 'supportive' (Godbole, 2022)
India	<i>The Transgender Persons (Protection of Rights) Act of 2019</i> recognises the right to self-perceived gender-identity where transgender people can register themselves (in national ID card and passport) under 'other' or 'third gender' (Sriiraam, 2022)	Society is not receptive yet. TGP still has no or least access to jobs, healthcare, education and housing (Arora, 2019)
Maldives	Strongly reject LGBTI and transgender and their rights officially	Does not ensure non-discrimination principles for LGBTI persons
Nepal	In 2007, The Supreme Court dictated to add the "other" category in all official documents to represent the third gender (Bochenek & Knight, 2012)	"Transgender people face violations in every sphere of their lives". (The Record, 2020)
Pakistan	<i>The Transgender Person (Protection of Rights) Act 2018</i> permits anyone to self-identify according to their preferences, e.g., male, female, or neither in national ID, passport and driver's license (Ingber, 2018)	TGPs are socially excluded and face high social difficulties (Abdullah et al., 2012)
Sri Lanka	Sri Lankan Law does not recognise the third gender (Malalagama, 2017)	Transgender is considered a 'sexual disorder', and transgender people are treated by psychiatrists (Malalagama, 2017)

2.2 Social Media and Gender Diversity

Traditional digital media are predominantly push media, where the sender broadcasts the message to the recipients. With the introduction of the Internet, people started explicating themselves and publishing, e.g., on websites. However, websites are unidirectional, asynchronous, and relatively less engaging. Later, Web 2.0 enhanced it with two-way conversation (e.g., Blogs) where reciprocity was the key (Courtois et al., 2009; Throuvala et al., 2019). Still, the communication was quite passive. More recently, social media have empowered people even more – anyone can join a platform to publish stories and multimedia and get reactions shortly. Contrary to tradition media, social media permit two-way communication, and the conversation may grow (Hasa, 2020; Hausman, 2020; Lawlor, 2018).

Social media also differ from other digital media, e.g., Blogging, though both allow people to share their opinions and thoughts. Social media is immediate, while the others (e.g., Blogs) are delayed in disseminating news/information and getting reaction regarding it (Lawlor, 2018). Relatedly, social media is real-time creation, whereas Blogs or websites can be scheduled (Johnson, 2021). Further, social media are generally more personality-centred, while blogs are topic-centred and better suited for long posts (Guberti, 2013). In addition, because of the ripple effect, social media content can reach a larger audience (i.e., viral, “reach-ness”) with active engagement of the users. Finally, social media are considered easy to use, more enjoyable than other digital media, and permit more active engagement (Johnson, 2021).

Although most societies understand gender options as binary, several countries recognise them as more varied and allow people to select 'other' in identity documents (e.g., passport). Alike, "Today, the internet has provided a platform where people can explore common experiences with gender diversity" (Gender Rights, 2020). Social media, too accept marginalised people and gender diversity (Vassilakopoulou & Hustad, 2023). For example, Facebook provides as many as 50 options for users who do not identify as male or female (e.g., agender, gender-questioning) (Steinmetz, 2014). Similarly, Twitter and Instagram offer space for the TGP to share their stories through hashtags, including *#translookslikethis* and *#NonbinaryIsntWhite* (Wortham, 2018). Thus, social media platforms are becoming a new digital world where atypical ideas, identities and habitats can live in parallel (Wortham, 2018).

2.3 Social Media and its use by Different Groups

There are limited studies on the social media use behaviour of gender-diverse users. Such research deserves more scholarly attention as social media addiction is prevalent among the socially excluded and mentally depressed

users (Baams et al., 2015). The few studies share one common aspect, i.e., how non-binary gender groups use social media to live like their heterosexual counterparts (Tuah & Mazlan, 2020). Studies suggest that, due to the anonymity and opportunity to control self-presentation, social media provide a relatively safe environment for LGBT communities (e.g., Craig et al., 2021). This is reiterated by Han et al. (2019) who demonstrate that, based on the recent developments in Internet and digital communications, social media networks provide positive and supportive platforms for LGBT communities. Studies inform us that these people use social media to meet others, seek information (Adkins et al., 2018), socialise (Craig et al., 2021), get mental support, and manage their identity (Hillier & Harrison, 2007; Hillier et al., 2012). They also consider social media as a tool to express themselves (Brammer, 2017), reduce stigma, accrue social capital (Cserni & Talmud, 2015), and seeking friendship, romance, and sex (Chow et al., 2017). Alternatively, they can ‘block’ specific people who behave disrespectfully, which they cannot practice offline (Craig et al., 2021; Hanckel, 2019).

On a different note, Blackwell et al. (2016) highlight that LGBT parents use social media to evaluate their safety concerning others in their social network and manage their relatives' privacy. Soriano (2014) demonstrate how the LGBT communities in the Philippines congregate on social media to fight for social and political inclusion. A similar finding has been reported by Yang (2019), where the platforms are used to enlighten the public about LGBT rights making meaningful impacts in society.

Escobar-Viera et al. (2020) understand that the higher rates of depression, psychological distress, social and political discrimination, harassment, and victimisation drive TGC to use social media. In other words, TGC “identify significant benefits from engagement with social media, as well as other Internet-enabled technologies” (Craig et al., 2021, p. 2). Their higher depression leads to high social media use (which may lead to addiction) (Han et al., 2019). Yet, there are limited studies on the effects of social media use, e.g., on overall wellbeing and quality of life of TGC. These issues deserve more scholarly attention as social media use is becoming prevalent among TGC (Baams et al., 2015). Further, social media literature deserves more conceptual and empirical studies comparing the use of social media between BGC and TGC (Escobar-Viera et al., 2020).

3 Model Development

The theoretical underpinning of our model is the *uses and gratification theory (UGT)* (Katz et al. (1973). Based on UGT, we postulate that there are several incentives for people to engage on social media; also, engagement

on social media will deliver specific outcomes. However, we argue that such incentives and outcomes can be stronger for TGC than for BGC. In our study, TGC is used as the proxy of gender diversity, which "is an umbrella term used to describe gender identities that demonstrate a diversity of expression beyond the binary framework" (Gender Rights, 2020).

3.1 Identifying the Antecedents of Online Social Media Engagement

While most people engage on social media for socialisation (Dolan et al., 2019) and enjoyment (Hilvert-Bruce et al., 2018), the incentives vary. UGT assumes that media users are active and goal-oriented; they satisfy gratifications using a specific medium. Katz et al. (1973) identify that people use mass media for four reasons: surveillance, personal identity, social relationships, and escapism. Over the past years, the proponents of UGT have identified different gratifications obtained from media use (Li et al., 2015). The high-level gratifications include psychosocial gratifications (Leung & Wei, 2000) e.g., self-presentation, social gratifications (e.g., Krasnova et al., 2017), and hedonic and utilitarian gratifications (e.g., Hossain et al., 2019; Li et al., 2015). The literature review of UGT on social media by Athwal et al. (2019) summarises social media users' drivers as cognitive, emotive, social, and habitual needs. Based on Katz et al. (1973), Athwal et al. (2019) and the literature on LGBT use of social media (Sect. 2.3), we identify four antecedents of social media engagement: (personal) identity management, social interaction, emotional reassurance, and habitual need.

3.1.1 Identity Management

Identity management refers to how individuals portray themselves to others. Humans generally explore and learn to increase their knowledge and intelligence to understand the society around them better and identify where their identity fits in. Studies (e.g., Carrasco & Kerne, 2018; Gender Rights, 2020) advocate that people should have the right to challenge the normalised concepts of gender (i.e., male vs. female) and decide how they want to disclose their gender identity to the world. In this regard, social media is convenient. "For the Facebook user, self-revelation is not merely an act of sharing personal details but is also an active construction of one's perception of oneself. Through Facebook, the user creates a social artifact expressing oneself" (Pullen & Cooper, 2010, p. 101). Social media empower people to have a virtual identity – the one they prefer and are comfortable with. Therefore, personal identity management is considered a paramount driver of SMEn (Carrasco & Kerne, 2018). Therefore, we propose:

Hypothesis 1a. Personal identity management positively influences social media engagement.

Extant studies suggest that TGC, e.g., LGBT are at lower levels of self-identification (Baldwin et al., 2015) but have a higher risk of dis-identification (Han et al., 2019). Self-identification is important for any person but critical for TGP with complex personal identities. Hence, they use online platforms to develop, understand, express, and celebrate their identity (Charmaraman, 2021; Hinduja & Patchin, 2020). On social media, they can announce their gender identity (e.g., by setting profiles) according to their preference and without prejudice⁶ (Erosheva et al., 2016; Wortham, 2018). In other words, social media give the TGC a discursive space for identity stimulation and affirmative celebration of sexual diversity (Charmaraman, 2021; Pullen & Cooper, 2010). Therefore, we argue and propose that managing personal identity using social media is more critical for TGC:

Hypothesis 1b. The relationship between identity management and social media engagement is stronger for the socially excluded third-gender communities than for other users.

3.1.2 Social Interaction

Humans are social species and need to interact with others. According to UGT, social need is an essential gratification of mass media. Social media platforms are increasingly becoming a place of socialisation (Khan, 2017). Zhang and Jung (2018) found social interaction as the strongest predictor of *WeChat* use. Other studies (e.g., Hilvert-Bruce et al., 2018; Hossain et al., 2019) reiterate this. Therefore, we hypothesise as follows:

Hypothesis 2a. Social interaction positively influences social media engagement.

Because of social isolation and lack of social support, TGP experience depressive moods. Driven by psychological needs, they engage in social media activities to avoid anxiety by mingling with people (Han et al., 2019). While public spaces (in many countries, including Bangladesh, India, and Pakistan) do not appreciate their presence, social media allow them to socialise (Chong et al., 2015). These platforms

⁶ There could be various reasons for that which are beyond the scope of this paper. However, one reason is: because of the asynchronous nature of social media, declaring the true identity here saves them from thousands of unpleasant questions and privacy-intruded explanations, and embarrassments.

allow them to develop a feeling of collective community and get support from same-minded people (Chong et al., 2015; Gudelunas, 2012). Hence, social media are safe-havens for them to interact (Amundsen & CMI, 2018). Recent studies propose that social interaction incentivises TGC to use social media (e.g., Charmaraman, 2021; Lissitsa & Kushnirovich, 2021). In summary, "For LGB individuals, social media is a primary mode of socialising, and LGB persons are more socially active on social media than heterosexuals" (Escobar-Viera et al., 2018, p. 2). Hence, we hypothesise that:

Hypothesis 2b. The relationship between social interaction and social media engagement is stronger for the socially excluded third-gender communities than for other users.

3.1.3 Emotional Reassurance

The literature review of Athwal et al. (2019) identified several gratifications related to emotional needs, including entertainment. Although reassurance is an emotional need, it is more than pleasure or enjoyment. In the current context, *emotional reassurance* can be defined as how social media users exchange genuine empathy, compassion, and concern with other users. Humans possess emotion; thus, they seek emotional support from others. Studies have identified emotional support as an important factor driving SMEn (Bae, 2018; Gan, 2018). Specifically, Li et al. (2019) report that people use *Weibo* to show emotional reassurance to their sports teams. Other studies support this notion and suggest that people seek emotional affection (Gallego et al., 2016) and reassurance from other social media users (Hilvert-Bruce et al., 2018; Han et al., 2019). Therefore, we propose:

Hypothesis 3a. Emotional reassurance positively influences social media engagement.

TGCs are vulnerable and often live with psychological problems (Han et al., 2019). "For LGBT communities, one of their aims of spending amount of time and energy on social media is to perceive social support from online peers" (Han et al., 2019, p. 93). With limited exposure and access to face-to-face psychological facilities, TGP use social media for emotional reassurance (Chong et al., 2015; Gudelunas, 2012; Han et al., 2018, 2019). To avoid emotional disorders, they need mutual and unconditional emotional support, especially from others who can validate their situations (have had a similar experience) (Escobar-Viera et al., 2018). On social media, they also can meet their idols and get emotional reinforcement, which may not be that critical for their heterosexual counterparts (Mehney, 2015). Therefore, we suggest:

Hypothesis 3b. The relationship between emotional reassurance and social media engagement is stronger for the socially excluded third-gender communities than for other users.

3.1.4 Habitual Need

Habit has been explained as automatic action that individuals are not conscious of (Triandis, 1979). Specifically, media habit is defined "as a form of automaticity in media consumption that develops as people repeat media consumption behaviour in stable circumstances" (LaRose, 2010, p. 194). *Habit* has been identified as a key factor for SMEn, both for BGP (e.g., Seo & Ray, 2019) and TGP (e.g., Escobar-Viera et al., 2018). Therefore, it is posited that habitual need is a common incentive for both groups. Thus:

Hypothesis 4. Habitual need positively influences social media engagement.

3.2 Outcomes of Social Media Engagement

UGT is a comprehensive theory answering why people use media and what media offer to people. Specific to social media, different individual-level outcomes have been reported (Kapoor et al., 2018), including personal performance (Dhir et al., 2019), life satisfaction (Ponnusamy et al., 2020), and quality of life (Krishnan & Zhou, 2019). "However, it is unclear whether psychological dependency on social media and social media use behaviour have beneficial offline effects" (Han et al., 2019, p. 91). Nonetheless, Cannon et al. (2017) recommend that "social media represents a phenomenon that may have an empowering impact on LGBT communities" (p. 71–72). Based on extant studies, we investigate two higher-level outcomes of SMEn, including social self-esteem and quality of life.

3.2.1 Perceived Social Self-esteem

People desire to be validated, approved and respected by the group members (they believe) they belong to or are affiliated with. This is related to Maslow's hierarchy of needs, which advocates that 'esteem needs' – a person's self-confidence, self-belief, personal and social acceptance and respect from others – are key stages in achieving self-contentedness (Komninos, 2020). Self-esteem is an internal and subjective evaluation of an individual and can be defined as how a person sees himself as competent and worthwhile (Coopersmith, 1967; Valkenburg et al., 2017). Self-esteem has three components: performance, social, and physical self-esteem. Performance self-esteem refers to one's sense of general competence (e.g., intellectual abilities, capacities, self-confidence, and self-efficacy). Social self-esteem refers to how people believe others perceive them. Finally, physical self-esteem

refers to how people view their physical bodies. In the context of SMEn, we found social self-esteem is relevant.

Prior studies (e.g., Fan et al., 2021) suggest that self-esteem or the variables related to social self-esteem, such as prestige, subjective social norm, and image, are important outcomes of SMEn (Saiphoo et al., 2020; Vogel et al., 2014). Specifically, recent studies advise that people use social media, perceiving that such use enhances their social value, status and prestige (Caso et al., 2020; Nie et al., 2018; Tibber et al., 2020; Valkenburg et al., 2017). Based on extant studies, we hypothesise:

Hypothesis 5a. Social media engagement increases users' social self-esteem.

In our study, we posit that SMEn enhances the social self-esteem of third-gender users more than other users for the following reasons. TGP have limited social networks in physical domains where they do not dare to be extolled. Using social media itself generates perceived prestige among their networks. In addition, the acceptance of their presence by others on social media platforms, whom they cannot reach in the physical world, gives a feeling of achievement and enhances their perceived social self-esteem. Moreover, social media open an infinite world of networks and connections to them, which is imperceptible and unapproachable in offline environments. They strongly desire to be evaluated and recognised by others by sharing their content and stories. They perceive that social media engagement and showcasing their achievements enhance their social standing. Therefore, we hypothesise that:

Hypothesis 5b. The relationship between social media engagement and social self-esteem is stronger for the socially excluded third-gender communities than for other users.

3.2.2 Perceived Quality of Life

According to Choi et al. (2007), any research dealing with technology should report to what extent the technology contributes to the overall performance of its users' lives. We consider to what extent SMEn affects users' general well-being e.g., 'quality of life'. *Perceived quality of life* can be defined "as an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards and concerns" (World Health Organization, n.d.). Studies found mixed outcomes of social media use regarding the users' quality of life. Recent studies identified the negative consequences of SMEn, including de-socialisation, fatigue, and insomnia (Brailovskaia et al., 2019; Malaeb et al., 2021). Alternatively, several positive outcomes related to quality of life are reported. Studies (e.g., Krishnan & Zhou, 2019;

Nam, 2019) found that social media use reduces social isolation and directly contributes to improving the quality of life of adults. Supporting the latter view, we suppose:

Hypothesis 6a. Social media engagement increases the quality of life of the users.

Social media help TGC improve quality of life by understanding a better meaning of life and opening opportunities to contribute to society and prosper in life. Social media also assist them in managing individual beliefs, relationships with social and political systems, and their physical, psychological and mental health. Some TGPs become popular on social media, which is almost impossible in the physical face-to-face world. Others reach global resources such as training, counselling, and international fellowship by engaging on social media, contributing to their quality of life. Therefore, we posit that:

Hypothesis 6b. The relationship between social media engagement and users' quality of life is stronger for the socially excluded third-gender communities than for other users.

Combining our hypotheses, we present our research model (Fig. 1).

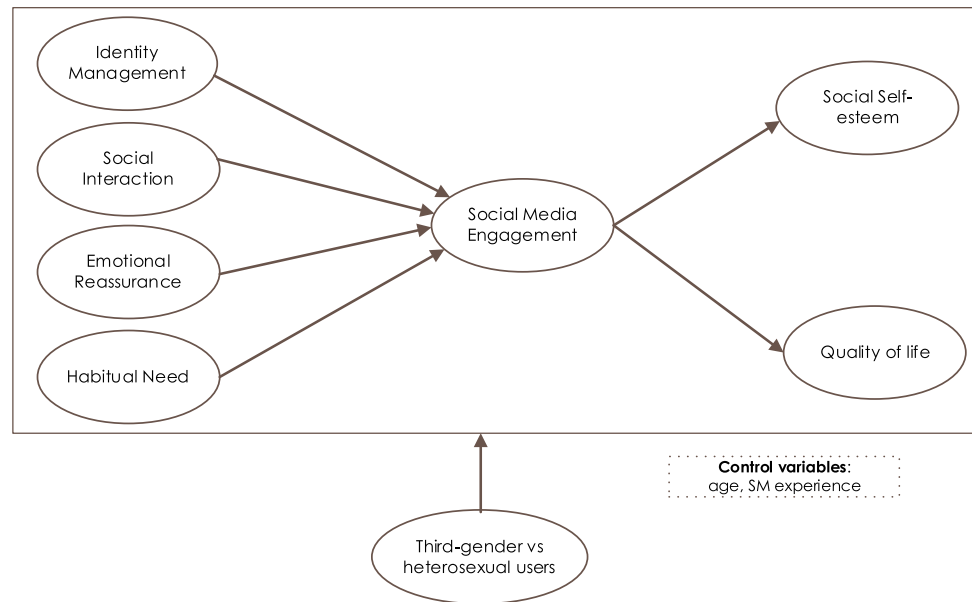
4 Method

4.1 Measures

For reliability, our measures are based on previously developed and applied indicators. However, as the measures used in previous social media studies do not necessarily fit the third-gender context, we have contextualised the measures by running a focus group discussion (FGD) session with 23 TGP. In the FGD session, the social media drivers and outcomes for TGC were discussed. The session ran for around 75 min in Dhaka, Bangladesh. TGP participants were given an incentive of Tk. 500.00 (Bangladeshi currency- approximately US\$7) is considered reasonable in the context of TGP's financial situation in Bangladesh.

Next, the measures that capture both the binary- and third-gender social media users were reviewed by a convenient sample of three academics (working in IS field) and two social media experts. The experts reviewed the items to ensure consistency, ease of understanding, sources of potential bias, and, most importantly, relevance to the context. In this process, we checked the content validity of the items, applying derivative of Q-Methodology (Van Exel & De Graaf, 2005) and item matrix *vs.* construct rating (MacKenzie et al., 2011). We grouped and placed the

Fig. 1 The research model



items horizontally, and the columns represented the constructs. All the respondents correctly allocated the item groups to their respective constructs (except three items), which expressed the adequacy of the content validity of the items. Before deleting the three items, we had a one-on-one session with experts to ensure content validity. We initially adopted five factors from Han et al. (2018) to measure emotional reassurance. However, the fifth item (“Using social media enables me to feel I am part of my social media communities”) was deleted because the FGD participants did not relate this item with *emotional reassurance*. Applying the same approach, “I would be sorry if social media shut down” has been deleted from *habitual need* scale. Finally, *perceived quality of life* has been adapted from Kim (2018)’s *satisfaction with life* and Akter et al. (2010)’s *quality of health life* scales. However, one item (“If I could live my life over, I would change almost nothing”) was deleted because the IS experts found it not common in both scales and for its relatively low mean and high standard deviation values in the source scale (see Kim, 2018). The experts additionally suggested minor improvements to the wording of the items, and those suggestions were incorporated.

All items for these measures (except *social media engagement*) were rated on five-point Likert scales anchored from 'strongly disagree' to 'strongly agree'. *Social media engagement* measures provided different options for each item (see Appendix A). Following acceptable translation practices (Lee et al., 2009), the survey instrument was first translated from English to the local language (Bangla) and translated back to English by a second individual. Discrepancies were discussed, and a resolution was reached among the authors.

4.2 Sampling Technique and Data Collection

During the data collection stage, we have employed two separate surveys to gauge the perceptions of the BG and TG users. In both cases, the eligibility criteria for participation was to use at least one social medium.

Given the hard-to-reach TGP communities, we have applied a combination of purposive and snowball sampling for data collection. Initially, the authors have reached out to the participants of the FGD (mentioned in Sect. 4.1) and asked them to participate in the survey. This approach is time- and cost-effective and often used in research with difficult-to-access samples (Spring et al., 2003). In a later stage, we have adopted snowballing sampling, commonly used in research when investigating hard-to-reach groups (Dusek et al., 2015) and in non-heterosexual contexts (Browne, 2005). As the TGC is very distinct and isolated, and they only know the others in the same communities, the existing respondents have been asked to nominate further respondents known to them. The first survey has been administered with a paper-based, Bangla version questionnaire to gauge the perception of the TGC in Bangladesh. This has been conducted by five carefully recruited TG representatives who surveyed in-person with TG respondents. The five data collectors have been recruited based on their leadership, engagement with and popularity among the TGC in Bangladesh. This technique has been applied believing the TG data collectors would be more trustworthy to the TG respondents. By deploying TG data collectors, this research also has overcome the barrier of limited educational background of some TG respondents, who needed additional explanation from someone more familiar to them. Both the respondents and the interviewers have been given nominal financial incentives.

Table 2 Testing the hypotheses

Relations	β value	t value	Result	β	t -value	β	t -value	Result
	Total sample			TGP sample		BGP sample		
IM to SEMn	0.169	3.932***	H1a supported	0.147	2.112*	0.071	1.037	H1b supported
SI to SEMn	0.248	4.975***	H2a supported	0.206	2.457*	0.295	4.476***	H2b partially supported
ER to SEMn	0.306	6.515***	H3a supported	0.397	4.977***	0.235	3.863***	H3b supported
HN to SEMn	0.277	7.908***	H4 supported	0.161	2.732**	0.396	7.235***	H4 partially supported
SEMen to SSE	0.365	7.879***	H5a supported	0.535	8.538***	0.360	5.612***	H5b supported
SEMen to QoL	0.417	8.614***	H6a supported	0.538	8.801***	0.479	7.868***	H6b supported

IM identity management, SI social interaction, ER emotional reassurance, HN habitual need, SEMen social media engagement, SSE social self-esteem, QoL quality of life; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

The second phase of the survey aimed to measure the perceptions of heterosexual users. The survey for this phase has been conducted using six Facebook groups related to community development and human rights, run by people from Bangladesh. These groups have been considered appropriate in the context of this study. In this phase of the survey, we have contacted the admins of the respective group and explained the survey's objectives. Once agreed, the admins have uploaded the survey link to their respective Facebook groups. Irrespective of gender, anyone could attend the survey. However, answers from respondents who answered 'other' to the question "what is your gender?" have been added to the first survey. Eventually, we have received 167 and 225 valid responses from the first and second surveys, respectively. It is observed that more than 50% of the respondents in the TGP sample did not receive education after high school, whereas 45% of heterosexual respondents received higher education. Similarly, around 70% of TGPs have used social media only for nine years. The demography of the respondents is provided in Appendix Table three.

To minimise common method bias (CMB), we have applied several procedural and statistical remedies following (Hulland et al., 2018). The results (see Appendix C) suggest that CMB was negligible in this study. To reduce social desirability bias (SDB), we have applied the principles of Larson (2019). In the participant consent form (PCF) supplied/loaded before the survey, the respondents have been assured that their responses would be anonymous, kept completely confidential, and used in an aggregated manner. On the first page of PCF, all respondents had to check the "I understand" radio-button before proceeding to the questionnaire. In PCF, we also have included a statement encouraging and appreciating respondents' honesty (Larson, 2019). These two efforts have been made to make the respondents less likely to respond in a socially desirable way (Chan et al., 2019).

5 Data Analysis and Results

We have applied Partial Least Squares (PLS)-based SEM for data analysis due to its advantages of flexible distributional assumptions, absence of factor indeterminacy, and

robust prediction (Akter et al., 2017). PLS-SEM has gained prominence for its dual analytical roles in explaining the model relationships and predicting the amount of variances explained in the endogenous constructs (Hair et al., 2021). Following Hair et al. (2021) guidelines, our study has estimated the reliability and validity parameters of both the measurement and structural model.

Assessing the measurement model, internal consistency has been measured as composite reliability; all of the values for composite reliability of every construct are greater than the threshold of 0.70. Then, convergent validity has been checked with two measures. First, all constructs met the acceptable criterion (> 0.5) for the average variance extracted (AVE) (Hair et al., 2021). Then we check the item loadings. All individual item loadings are more significant than 0.7 except one item (SE4 = 0.674), which has been retained given that 0.6 is sufficient (Igbaria et al., 1995). Finally, discriminant validity has been checked with two measures. The first set of discriminant validity tests show that each construct is more strongly related to its own measures than any other construct in the model (Appendix Table four). Next, the cross-loading matrix show that items load strongly on their corresponding constructs with low cross-loadings with other constructs (Appendix Table five). Taken together, the measurement model demonstrates sufficient convergent validity and discriminant validity.⁷

To assess the structural model, the direction of the path coefficients, the magnitude of the t statistics and the explanatory power of the independent variables (R^2) have been checked – the results are summarised in Table 2. Our model explains 57.6%, 65.8%, and 52.9% of the variance in people's SMEn by total sample, heterosexual, and third-gender users, respectively. The R^2 values are 'moderate' to 'substantial' (Henseler et al., 2009). To ascertain endogeneity is not

⁷ To save space, we provided the results of the combined model although the properties have been individually checked in both samples.

an issue with the model prediction, the structural model also has been tested with two control variables: age and social media experience (Hult et al., 2018). There is a minor variation in the R^2 value of the SMEn. For the model with the total sample, the R^2 value increased from 0.576 to 0.579 ($\Delta = 0.003$) with the control variables. The impact of these demographic variables is insignificant as their respective t values are much below the recommended thresholds (1.96), suggesting that none of them have significant effects on SMEn. This analysis ascertains endogeneity had no issues.

6 Discussion

6.1 Findings

This paper aims to explore how the antecedents and consequents for SMEn vary between BG and TG users. The results obtained from SEM-PLS confirm the hypotheses except for one. Overall, the findings align with the existing limited literature on the current context (e.g., Escobar-Viera et al., 2018, 2020; Han et al., 2019).

The results generally show that *identity management* is a driver of SMEn, which supports H1a and is consistent with extant studies (e.g., Carrasco & Kerne, 2018; DiMicco & Millen, 2007). Further investigation shows that such a relationship is valid only for the TG sample, which is plausible and supports our H1b. This is interesting and valuable. Past studies (e.g., Kaiser et al., 2021; Owens, 2017) have found that non-heterosexual communities (e.g., LGBT) use social media to manage their self-identity and celebrate and reaffirm their sexual identity, which is not the case for heterosexual users. Similarly, recent studies (e.g., Craig et al., 2021) suggest that identity expression is an important incentive for using social media by TGC. More specifically, compared to heterosexual users, TGC use social media more for identity expression. Our result implies that, as the TGC are minorities in any given society (e.g., Bangladesh), they encounter huge stigma, social pressure, and legal constraints to identify with their actual gender identity (Escobar-Viera et al., 2018). Thus, social media play an important role in providing them with an avenue to express and manage their identity. Alternatively, expressing and managing individual identity does not affect social media engagement for the BGC. They do not possess complexities related to their gender and therefore let society know about gender identity with different mechanisms, including conversation and mingling with partners with opposite sex (Kaiser et al., 2021).

Our second hypothesis is relating to social interaction gratification from SMEn. The total sample finds a significant positive relation; thus, our H2a is supported. This is intuitive and supported by extant literature (e.g., Khan, 2017; Zhang

& Jung, 2018). It is further obtained that this relationship is stronger for the BG sample than their TG counterpart, and thus H2b is partially supported. While we understand that socialisation is a strong motivation for SMEn among TG individuals (Craig et al., 2021; Escobar-Viera et al., 2018; Owens, 2017), particularly in Bangladesh (Nova et al., 2021), the BGC use the platform even more for socialising. As BGC generally have more social networking groups on social media (than TGC), they socialise more. This is consistent with current studies (e.g., Byron et al., 2021, Escobar-Viera et al. 2020) that suggest that both LGB and non-LGB communities use social media for socialisation; yet, for the former group, this incentive is bigger, who consider social media as a 'primary' mode of socialising in today's world.

The relationship between emotional reassurance and SMEn is positively and significantly related to the total sample; therefore, our H3a is supported. It implies that not only TG but also the BG i.e., all social media users⁸ appreciate emotional support from other users. Therefore, we conclude that emotional reassurance strongly predicts SMEn for TGC (Craig et al., 2021). Further, the relationship is stronger for the TG sample, which fully supports our hypothesis 3b.⁸ TGC – who need more emotional support than their BGC counterparts – are more engaged on social media. This is consistent with recent studies (e.g., Craig et al., 2021). Given social media's 'reach-ness' affordance, TGC can seek emotional support from the social media communities. Such support is hard for them to get from offline communities because of social, religious and other taboos. Nevertheless, on social media platforms, people "carefully manage the image they present to the world, to present themselves in a maximally positive, flattering light" (Liu & Baumeister, 2016, p. 81); they might show emotional support to the TGC which they would not usually do in offline spaces. As TGC are socially excluded and vulnerable, support from others through social media is a well-asked-for and cherished to them than to the non-TGC in predicting emotional reassurance. However, Escobar-Viera et al. (2020) warned that social media can also be contagious of negative emotions.

In support of our H4, we found that SMEn has become a habit – both for BG and TG users- supported by prior studies (e.g., Incollingo, 2018; Webb & Fulton, 2019). With a deeper look, the magnitude of the relationship is very high for the BG sample, which suggests that habitual need is more of an incentive for the BG sample than the TG counterpart. A further t statistics test shows that the two samples' relationship is statistically different (see Appendix F). Apparently, BGC is more engaged on social media out of habit

⁸ A multi-group t statistics test confirms insignificant difference between these two groups for the relationship between emotional reassurance and social media engagement. See appendix F for details.

or addiction (Dwivedi et al., 2018); however, for TGC, it is more necessity-driven (Escobar-Viera et al., 2020).

Regarding the consequences, SMEn increases the social self-esteem of the users (H5a), which is supported by current literature (Liu & Baumeister, 2016). It implies that despite the reported malicious consequences of social media, overall, it increases users' self-esteem. As expected in H5b, we found that social media increases self-esteem more for the TGC than for the BG equivalent. The TGC deserve to live with a "head held high" (Knight, 2016). However, they are yet to be positioned in the greater society with human potential and dignity (Khan et al., 2009). Nevertheless, SMEn enhance their confidence, self-belief, ad respect and acceptance in society, which suggests the positive contribution of social media. Similarly, our results reveal that SMEn enhances the users' perceived quality of life and thus accepts H6a. Prior studies empirically prove this (e.g., Wheatley & Buglass, 2019), even though few studies oppose (e.g., Kross et al., 2013). Further, the influence of SMEn is stronger for TGC than the BGC sample, thus supporting H6b. Prior studies support our findings, arguing that social media enhances the wellbeing of LGBT communities (e.g., Craig et al., 2021). However, Nam (2019) do not find any influence of gender on quality of life.

6.2 Implications for Research

This study offers three major implications for research.

First, in one research frame, this paper extends prior research on social media by understanding why people engage in social media and how social media influence people's lives. Explaining their relative effects on TG and BG samples further adds knowledge to the current literature. In general, IS studies suggest that the adoption and use of ICTs can vary with gender: male and female (e.g., Venkatesh et al., 2014). Likewise, few social media studies have identified that gender determines social media use (e.g., Krasnova et al., 2017; Nam, 2019; Su et al., 2020; Ye et al., 2018). The bulk of the existing IS studies apparently ignore that people can be classified as more than just male and female; fortunately, social media do not. Challenging the assumption of most social media studies, this study argues that the incentives and outcomes of SMEn are not uniform to the users but vary with gender diversity i.e., between BGC and TGC (Craig et al., 2021; Escobar-Viera et al., 2020). Our study encourages IS studies to focus on gender diversity i.e., beyond male and female classifications, and investigate how the associated variables affect their (existing) models, and modify where needed.

Second, Building on UGT, this study shows that different uses and gratifications affect people's SMEn. In an environment where uses gratifications are central to social media use (Dolan et al., 2019), we believe it is important to understand

how these factors affect SMEn. Moreover, we investigate if the SMEn actually increases users' self-esteem and quality of life, which is important to understand, especially when several studies reported the ugly side of it (Dwivedi et al., 2018). More importantly, our findings describe that, from social media, this special group i.e., TGC derive more self-esteem and quality of life than their counterparts do. As many governments, especially in developing countries and international organisations, including the UN, are taking initiatives to increase the quality of life of the TGC (UN, 2018), our study is timely. It provides insights and contributes to current initiatives and debates.

Third, social media use by socially excluded TGC is a new context within which relatively few studies have been conducted. Specifically, while social media use became a current trend to the TGC (Byron et al., 2021), the underlying antecedents and consequences that make social media so appealing to users remain largely unexplored. Yet, studies consider social media a strong survival and growth tool with great potential to lessen gender discrimination. Therefore, they need support from researchers and social media architects for innovative services, which will permit them to practice more psychological, social, and economic functions e.g., workshops, training, and crowdfunding (Borst et al., 2018). Therefore, this study could serve as a starting point for understanding the social inclusion phenomenon in social media contexts.

6.3 Implications for Practice

Our study contributes to ongoing discussions on SMEn (e.g., Han et al., 2019; Khan, 2017), especially on the antecedents and consequences of it. Such research can enable researchers, social media architects, and policymakers to get insights that can help better social and individual outcomes. We discuss three main implications of our study for practice.

Our first practical implication guides social media architects who need to understand the incentives of SMEn. Primarily, this study demonstrates that identity management is critical for TGC. This implies promoting personalisation and customisation features (Hossain et al., 2021). Applying personalisation mechanisms, which are based on user behaviour, networking activities, etc., social media platforms can design these users' profiles differently. Taking examples from personalised marketing (Schulze et al., 2014), personalised content can be directed to these users. Social media architects can also pay attention to customisability features where users can tailor their identity declarations. Social media architects can use requirement questionnaires or gamification to understand identity management better to acquire information on personalising and customising identity (Pasanen, 2016). The architects can also consider the other key factors, including emotional reassurance towards personalising users' profiles.

To recognise this special group, social media can arrange different activities concerning emotional support, including promoting third-gender speakers and designing and offering specialised training, workshops, and presentations on their physical and mental health management (Craig et al., 2021). Our implication extends Fox and Ralston (2016)'s study that specifically discusses how social media can serve as informal learning environments for LGBT individuals, particularly during the formative stages of their evolving gender identity. Addressing such major incentives for these users may ensure better user experiences leading to improved loyalty to social media platforms.

Our second practical implication is based on the results related to the consequence of SMEn, which reiterates the importance of social media use to enhance the personal lives of socially excluded people (Byron et al., 2021; Tuah & Mazlan, 2020). Our finding may help guide conversations between TGC representatives and experts, social media architects, and professionals regarding how social media can further contribute. Social media platforms can plan to incorporate gender-diversified features that potentially give more options for a better life for socially excluded people. For instance, providing a separate platform⁹ within social media platforms to support these people's needs is promising. Such platforms would permit the exchange of their emotions, ideas, and aspiration, which the 'normal' societies do not appreciate. Such a different platform also could educate them about their unique physical and mental health issues. Similarly, healthcare professionals could lecture them and explain different health-related issues unique to them over social media (e.g., Fox & Ralston, 2016). In addition, psychologists can build and enhance self-esteem among these vulnerable people to contribute to society.

Third, our research has important implications for public policy. It has always been a challenge for governments in developing countries to determine how the physical and mental wellbeing of the socially excluded TGC can be enhanced. Due to social, cultural, and religious constraints, bringing them into mainstream societies is always challenging. Several governments, United Nations, the World Bank, and humanitarian organisations are working on ensuring equality of rights and quality of life of sexually non-binary people, especially in developing nations (Daize & Masnun, 2019). Our study suggests that the TGP's self-esteem and overall quality of life can be improved through SMEn, which is otherwise difficult to ensure for this population. Hence, government agencies can develop different initiatives to engage them in socio-economic and cultural activities through social media. Government

initiatives can include different training programs (e.g., how to become entrepreneurs) and use them as resources than a liability for the economy (Badgett et al., 2019). Given the diversified and vibrant culture of the TGC, social media training programs can assist them in creating digital content and earning from it. At the same time, an e-commerce platform for them can be effective where they can buy and sell products outside societies do not value or appreciate.

6.4 Limitations and Future Research Direction

This study has some limitations, which provide opportunities for future research. First, we have examined the social media outcomes from generic perspectives where future research can focus on specific dimensions. For instance, as the TGC, especially in developing countries, are vulnerable regarding socio-economic dimensions (Daize & Masnun, 2019), future research should examine how social media can contribute. Recently, government initiatives are often motivated by the desire to alleviate poverty (Daize & Masnun, 2019) and enhance socio-economic status and empowerment (Badgett et al., 2019). Nonetheless, few studies revealed that social media could play vital roles in increasing economic output in developed (Florida, 2010) and developing countries (Fan et al., 2021; Olanrewaju et al., 2018). Future research may examine how social media can contribute to and build an inclusive ecosystem and investigate if social media can reduce socio-economic disparities between TGC and BGC. Similarly, research explaining the process of political inclusion through social media is invaluable (Soriano, 2014).

Second, in this study, we have considered the TGC as the representative of the socially excluded group. Although this group is a critical component of the societies, they are tiny in numbers. Other socially excluded groups, including aboriginals or people in the lowest societal group (e.g., sex workers, sweepers), especially in South-East Asian countries. It would be interesting to investigate if our results are also consistent in those user groups. Third, we have used a particular theoretical lens i.e., uses and gratification. Future work should consider alternative theoretical lenses. For instance, the outcomes of social media use can vary based on the usage pattern. Therefore, more recent theories, such as the use-diffusion model of ICT (Shih et al., 2017), demonstrates that ICTs do not offer the same outcomes to all; instead, the consequences are dependent on the variety and rate/frequency of use (i.e., limited use vs. intensive use). The outcomes of such research will offer generalisability and required modifications to suit this new context.

Fourth, although we have collected survey data from different groups at different times, our research inherits the limitations of cross-sectional research. Given that the respondents' perceptions and goals may change over time (DeVito et al., 2018) or the respondents' social media use dissipated soon after we collected the responses, longitudinal studies of longer durations, e.g., 3–5 years, will help understand

⁹ Here, we are not discriminating but suggesting a comprehensive and trustworthy channel where TGP would enjoy a better life with information specific to their needs and find empathy.

the complete nature of use and impact patterns. In addition, we recruited respondents who use Facebook; future studies can replicate the model in other social media platforms and report the differences (DeVito et al., 2018).

7 Conclusions

For more than a decade, social media have been playing an increasingly important role in people's daily lives, including TGC, who experience pervasive discrimination. This research has aimed to understand the drivers and outcomes of SMEn between binary- and third-gender people from a developing country's (i.e., Bangladesh) perspective. Specifically, we have hypothesised four SMEn predictors: identity management, social interaction, emotional reassurance, and habitual need. Furthermore, social self-esteem and quality of life are two outcomes of SMEn. Survey data largely supported our model. Our work advances knowledge regarding the perceptions of socially excluded people where they take advantage of technology to lead a better life with improved esteem. As our study focuses on a special and vulnerable group of developing countries, this research extends previous research on IS and social media. It has significant implications for research about social inclusion and ICT use in developing countries. Yet, future studies can shed light on how social media can engage them in economic development.

Appendix A. Measures

Identity Management

1. Social media enable me to tell others about myself.
2. In social media, I can express myself to others.
3. Social media enable me to open up easier about myself.
4. In social media, I feel less shy to discuss about myself.

Social Interaction

1. Using social media, I can stay in touch with others.
2. In social media, I can easily exchange and/or share opinions with others.
3. I can easily connect with other people by using social media.
4. I can easily develop interpersonal relationships with other by using social media.

Emotional Reassurance

1. From social media I find emotional support when I am in need.

2. On social media, I can share my joys and sorrows with others.
3. I have friends on social media who is a source of comfort to me.
4. There are friends on social media who care about my feelings.

Habitual Need

1. Social media is part of my everyday activity.
2. Using social media is natural to me.
3. Social media use become my habit.
4. I feel that I must use social media every day.

Social Media Engagement

1. On an average, I engage myself on social media: (i) once a day (ii) 30 min a day (iii) 31–59 min a day (iv) 1–2 h a day (v) 3–4 h a day, (vi) more than 4 h a day
2. In the last week, how often did you use the emoji/emotions (like, love, care, cry, or angry) on social media? (i) never (ii) occasionally (iii) a couple of times (iv) at least once in every day (v) a couple of times in every day
3. In the last week, how often did you comment on social media? (i) never (ii) occasionally (iii) a couple of times (iv) at least once in every day (v) a couple of times in every day
4. In the last week, how often did you post/tweet (or shared a post/tweet) on social media? (i) never (ii) occasionally (iii) a couple of times (iv) at least once in every day (v) a couple of times in every day

Social Self-esteem

1. Social media use enables me to improve my confidence.
2. Social media use enables me to improve my self-belief.
3. Using social media gives me more acceptance in the society.
4. Because of social media engagement, I receive respect from others.

Perceived Quality of Life

1. Getting services from social media have enabled me to improve my quality of life.
2. In most ways, since I started using social media, my life has come closer to my ideal.
3. I have been more satisfied with my life, thanks to social media.
4. So far, social media has helped me to achieve the level I most want in life.

Appendix B

Table 3 The demographics of the respondents

	TGP (n = 167)	non-TGP (n = 225)
Age		
18–22	17.1%	18.9%
23–30	28.3%	21.6%
31–40	22.6%	23.1%
41–50	14.3%	16.8%
51–60	14.1%	14.5%
61 +	3.6%	5.1%
Education		
No schooling	15.1%	3.2%
High School	41.2%	23.3%
College	21.5%	28.6%
Associate degree	18.3%	16.3%
Tertiary degree	3.9%	28.6%
SM Use experience		
1–4 year	29.2	16.2
5–9 year	38.7	29.7
10–15 year	20.2	42.3
15 + year	11.8	11.8
Age		
18–22	17.1%	18.9%
23–30	28.3%	21.6%
31–40	22.6%	23.1%
41–50	14.3%	16.8%
51–60	14.1%	14.5%
61 +	3.6%	5.1%
Education		
No schooling	15.1%	3.2%
High School	41.2%	23.3%
College	21.5%	28.6%
Associate degree	18.3%	16.3%
Tertiary degree	3.9%	28.6%
SM Use experience		
1–4 year	29.2	16.2
5–9 year	38.7	29.7
10–15 year	20.2	42.3
15 + year	11.8	11.8

Appendix C. Assessment of Common Method Bias

In order to control/minimise common method bias (CMB), we have applied both procedural as well as statistical remedies.

Regarding procedural remedies, we have applied several techniques as follows. The measurement items used in this study have been adapted from existing literature and contextualised where needed. Next, whether the questionnaire is understood by the third-gender sample/communities, we have conducted a pre-test and refine the items that found unclear. We have tried and kept the instructions on the survey questionnaire as simple, specific, and concise as possible; for instance, avoing double-barreled questions. In addition, respondents were not allowed to go back and check their response on the questions they attempted.

Regarding statistical remedies, we have applied three techniques. First, the Harman single factor has been conducted where the single factor extracted was 31.5%, which is less than 50%; and thus, there was no clear influence of CMB. Next, we have applied the marker variable technique. A theoretically unrelated marker variable has been included in the research model. The result shows an insignificant effect of the marker variable on social media engagement. Finally, we have examined the correlation matrix to determine if any of the correlations were above 0.9, which is evidence that CMB may exist (Pavlou et al., 2007). The correlations are all significantly below the 0.9 threshold (see Appendix D). Taken together, the tests provide evidence for minimal threat of CMB in our data.

Appendix D

Table 4 Discriminant validity with Fornell-Larcker method

	CR	AVE	1	2	3	4	5	6	7	8
1. Identity Mgnt	0.899	0.690	0.831							
2. Social Int	0.870	0.626	0.490	0.791						
3. Emotion Reass	0.904	0.657	0.398	0.519	0.810					
4. Habitual Need	0.926	0.759	0.243	0.447	0.425	0.871				
5. QoL	0.880	0.647	0.004	0.282	0.396	0.498	0.804			
6. Self-esteem	0.859	0.605	-0.048	0.323	0.318	0.420	0.594	0.778		
7. Marker	0.903	0.824	-0.083	-0.038	0.018	0.030	0.006	0.053	0.908	
8. SM Eng	0.920	0.743	0.479	0.513	0.419	0.459	0.417	0.365	0.028	0.862

Appendix E

Table 5 Cross-loading matrix

	IM	SI	ER	HN	SMEEn	QoL	SSE
IM1	0.877	0.475	0.376	0.194	0.402	-0.051	-0.081
IM2	0.884	0.473	0.376	0.222	0.420	-0.020	-0.067
IM3	0.819	0.364	0.301	0.177	0.389	0.014	-0.014
IM4	0.736	0.307	0.264	0.213	0.379	0.076	0.007
SI1	0.498	0.827	0.421	0.326	0.459	0.158	0.231
SI2	0.442	0.817	0.424	0.311	0.520	0.177	0.221
SI3	0.352	0.800	0.379	0.400	0.498	0.232	0.310
SI4	0.255	0.716	0.419	0.380	0.457	0.330	0.260
ER1	0.399	0.422	0.867	0.330	0.544	0.322	0.233
ER2	0.363	0.440	0.814	0.296	0.524	0.253	0.223
ER3	0.291	0.476	0.887	0.418	0.538	0.406	0.335
ER4	0.398	0.494	0.839	0.405	0.547	0.350	0.304
HN1	0.177	0.397	0.366	0.880	0.504	0.448	0.404
HN2	0.197	0.394	0.372	0.920	0.468	0.452	0.368
HN3	0.252	0.391	0.351	0.872	0.463	0.376	0.285
HN4	0.222	0.374	0.386	0.810	0.504	0.453	0.397
SMEEn1	0.510	0.553	0.553	0.412	0.842	0.281	0.218
SMEEn2	0.463	0.505	0.564	0.493	0.891	0.339	0.286
SMEEn3	0.378	0.532	0.525	0.470	0.869	0.383	0.361
SMEEn4	0.315	0.526	0.496	0.542	0.846	0.426	0.381
QoL1	0.016	0.190	0.254	0.342	0.297	0.786	0.447
QoL2	-0.070	0.153	0.297	0.381	0.273	0.853	0.474
QoL3	0.108	0.292	0.405	0.446	0.413	0.839	0.440
QoL4	-0.080	0.239	0.285	0.413	0.325	0.734	0.558
SSE1	-0.058	0.295	0.237	0.352	0.281	0.515	0.802
SE2	-0.196	0.170	0.175	0.376	0.253	0.555	0.832
SSE3	-0.177	0.168	0.167	0.347	0.227	0.499	0.794
SSE4	0.194	0.322	0.355	0.242	0.337	0.306	0.676

Appendix F. The Multiple Group Analysis

We conducted a multi-group analysis to compare the two samples (i.e., TGP and BGP) and learn about the significant statistical differences between them. It was done by comparing the pairs of path coefficients for identical models but based on different samples (Henseler & Fassott, 2010). We used the Smith-Satterwait test because the samples were not distributed normally and the variances of these groups are assumed different. According to this procedure, a t test was calculated by the following equation:

$$t = \left| (\text{path}_{\text{sample1}} - \text{path}_{\text{sample2}}) \right| \sqrt{SE^2_{\text{sample1}} + SE^2_{\text{sample2}}}$$

The ' $\text{path}_{\text{sample}}$ ' refers to the value of the path coefficient according to the subgroup, whereas SE refers to the standard error.

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Data Availability The survey data supporting the findings of this study are available to supply when required.

Declarations

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