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The Modern Impact of Technology on LGBTQ+ Identity and Coming-Out Anxiety in Sydney

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Abstract. Digital technologies and wearable health devices increasingly shape everyday health practices and social identity. This study examines how modern technologies influence LGBTQ+ individuals' identity formation and coming-out anxiety in Sydney, Australia. Using a mixed-method design, the research draws on public datasets, digital policy analysis, surveys, and Yarning/focus-style narrative interviews (n = 25). Two key questions guide the study: (1) how technology shapes LGBTQ+ identity and anxiety around disclosure; and (2) how social media feedback loops reinforce stigma or support wellbeing. Using the Social Ecological Model (SEM), the findings show that risks are multi-layered: low privacy literacy (individual), fear of being ostracized by family/peers (relationships), the absence of community-inclusive sexual education materials (community), and regulatory ambiguity regarding wearable health data governance (societal). The study concludes that culturally safe, inclusive, and legally robust digital health systems are crucial to achieving public health equity, and recommends local data residency options, gender-diverse algorithm training, and community-led reform of sexual health communication in NSW.

Keywords: LGBTQ+, Digital social media, Public health

1. Introduction

Wearable digital health platforms have rapidly expanded across global cities; in Sydney, community surveys show that smartwatches are one of the most widely adopted everyday self-care devices among young adults. For LGBTQ+ populations, technology provides new modes of identity exploration and community belonging, but also new pathways for digital harm, including algorithmic misrepresentation and biometric data misuse. Public health scholars frame this as a modern form of technology that mediates health inequity, not solely as individual behaviors, but as socially and institutionally shaped privilege.

LGBTQ+ individuals in NSW already experience higher levels of psychological stress and face barriers to traditional sexual-health communication. The absence of diverse gender representation in curricula and inadequate guidance on digital privacy settings limit safe engagement with preventive digital care. This study is important because digital health under-participation, driven by fear of stigma, bias, or outing, produces population-level public health blind spots, reducing the accuracy of early surveillance and mental health prevention across cities.

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Digital health platforms, wearable devices, and algorithm-curated social media environments are increasingly integrated into urban life, particularly in cities such as Sydney, where digital infrastructures and mobile health adoption are widespread. For LGBTQ+ individuals, these technologies have enabled new forms of identity exploration, peer support, and community participation. Yet, they also generate new configurations of risk, including algorithmic misclassification, targeted harassment, data surveillance, and involuntary outing [1,2]. Existing research demonstrates that LGBTQ+ populations experience disproportionately higher psychological distress and barriers to traditional health communication pathways in Australia, particularly in contexts where school and clinical environments lack gender-diverse representation [3,4].

Emerging public health scholarship conceptualises these inequities not simply as individual vulnerabilities but as digitally mediated social determinants of health, shaped by access, privacy literacy, social stigma, and institutional governance frameworks [5]. At the same time, social media spaces function ambivalently: they provide visibility and community affirmation, while also exposing users to repetitive stigma content and discriminatory algorithmic filtering that can reinforce internalised anxiety among questioning or closeted individuals [6,7].

This paper examines how modern technologies shape LGBTQ+ identity formation and coming-out anxiety in Sydney. The study asks:

(1) How digital technologies and platforms influence the processes of identity recognition and disclosure among LGBTQ+ individuals; and

(2) What does repeated exposure to LGBTQ-related content on social media contribute to either stigma reproduction or to well-being?

Using a mixed-methods approach grounded in the Social Ecological Model (SEM), the study contributes to digital public health equity debates by identifying multi-layered barriers and opportunities for culturally safe and inclusive digital environments in NSW [8,9].

2. Research design

A mixed-method strategy was applied:

• Quantitative survey among LGBTQ+ adults in Sydney (n = 162), capturing:

• digital platform use, identity disclosure patterns, wearable health device adoption, privacy literacy, and anxiety indicators.

• Qualitative interviews (Yarning / focus-style) with LGBTQ+ participants (n = 25), exploring identity narratives, technological experiences, and coming-out contexts.

• Policy & platform analysis, including NSW digital-health guidance and wearable-data governance frameworks.

Survey data were analysed using descriptive statistics and regression-based associations between technology exposure patterns and reported anxiety outcomes. Interview transcripts were thematically coded to identify identity formation trajectories and stigma-related interaction patterns [10,11].

Ethics procedures emphasised anonymity, optional pseudonyms, and consent-based disclosure to minimise risks of identity exposure.

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Hypothesis 1: Lower privacy literacy and greater algorithmic gender mismatch are associated with higher coming-out anxiety among LGBTQ+ users [12,13].

Hypothesis 2: Higher perceived risk of unintended digital exposure is correlated with stronger relational anxiety and delayed disclosure decision-making [6,7,12,14].

Hypothesis 3: Inclusive community education and affirming health services reduce internalised stigma and support safer engagement with digital health systems [3,4,15].

Hypothesis 4: Regulatory uncertainty around biometric and wearable-data governance contributes to lower participation and heightened anxiety among LGBTQ+ individuals [2,5,13].

3. Quantitative results and regression analysis

Descriptive statistics indicated substantial disparities in psychological outcomes between LGBTQ+ respondents and heterosexual comparison estimates drawn from national-level datasets. Consistent with the ABS National Study of Mental Health and Wellbeing (2020–22), 74.5% of LGB+ participants reported having experienced at least one mental disorder in their lifetime, compared with 41.7% among heterosexual Australians; in the past 12 months, 58.7% of LGB+ individuals reported a mental health condition, more than double the 19.9% reported by heterosexual respondents. Within the present sample, 42.8% reported high or very high psychological distress, and 38.6% reported having seriously considered suicide, aligning with elevated distress patterns found in Australian LGBTQ populations.

At the subgroup level, participants identifying as transgender or non-binary reported significantly higher anxiety scores and self-harm histories than cisgender respondents, consistent with national evidence showing 85.2% lifetime mental-ill-health prevalence among gender-diverse individuals and substantially higher lifetime suicidal ideation rates. These disparities underscore a significant baseline burden of psychosocial risk before considering technological influences.

3.1. Regression model specification

To examine whether technology-related exposure contributes to coming-out anxiety beyond background psychosocial risk, a series of linear regression models was estimated.

Dependent variable (DV)

Coming-out anxiety index (standardised composite of fear of involuntary outing, stress associated with disclosure decisions, perceived relational risk).

Table 1. Key independent variables (IVs)

Variable	Description
Privacy Literacy Score	Familiarity with privacy settings/platform control
Algorithmic Exposure Frequency	Repeated unsolicited surfacing of LGBTQ-related content
Participation in Affirming Online Communities	Membership & engagement intensity
Wearable Data Gender-Mismatch	Experience of binary category misclassification

Control variables

- age
- sexual orientation subgroup

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• gender identity category

• prior mental-health diagnosis

• discrimination exposure history

All continuous variables were standardised; variance inflation tests indicated no multicollinearity concerns.

3.2. Regression findings

Results from the baseline model showed that privacy literacy was a significant negative predictor of coming-out anxiety. ($\beta = -0.32$, $p < 0.01$), indicating that respondents with greater confidence in managing platform privacy settings reported lower anxiety related to disclosure decisions.

Conversely, algorithmic exposure frequency was a positive and significant predictor($\beta = 0.27$, $p < 0.05$), suggesting that repeated unsolicited surfacing of queer-related content increased perceived risk of accidental identity exposure, reinforcing avoidance and delay in disclosure decisions. This pattern corresponds with prior research highlighting algorithm-driven visibility as a key source of relational anxiety among LGBTQ users.

The wearable-data gender-mismatch variable was also positively associated with anxiety($\beta = 0.24$, $p < 0.05$), particularly among transgender and non-binary respondents, supporting qualitative accounts that binary defaults in biometric platforms contribute to identity-based discomfort and distrust in digital health participation.

By contrast, participation in affirming online communities was a significant protective factor($\beta = -0.29$, $p < 0.05$), predicting lower internalised stigma and greater identity confidence. This aligns with evidence that online peer networks provide psychosocial buffering and resilience for LGBTQ users.

The fully adjusted model explained 42% of variance in coming-out anxiety (Adj. $R^2 = .42$), indicating that technology-mediated experiences contribute meaningfully to identity-related anxiety above and beyond baseline mental-health burden and discrimination exposure.

3.3. Interpretation

Taken together, the regression results suggest that digital technology functions as both a risk amplifier and a protective resource:

Risk-increasing pathways include:

• involuntary visibility generated by algorithmic recommendation systems

• binary categorisation constraints within biometric/wearable systems

• privacy-management uncertainty in shared or family device environments

Protective pathways include:

• community-affirming online networks

• peer-led identity literacy

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• supportive digital belonging environments

These findings reinforce the logic of the Social Ecological Model — anxiety outcomes are not solely individual psychological phenomena, but emerge through interactions between digital architectures, relational safety, and community-level inclusion conditions.

4. Outcomes

Quantitative findings indicated that:

(1)Lower privacy-setting literacy significantly predicted higher coming-out anxiety scores ($p < 0.05$).

(2)Repeated exposure to online stigma content was associated with stronger internalised stigma.

(3)Participation in queer-affirming online communities predicted higher identity confidence and reduced anxiety.

Qualitative narratives showed that technology operated as both a protective resource (peer connection, identity language, community validation) and a risk amplifier (surveillance exposure, algorithmic outing, binary classification constraints) [6,10,11,14].

5. Discussion

These results suggest that technology-mediated identity anxiety is influenced not only by individual psychological vulnerability but also by relational exposure risk, community-level inclusion capacity, and structural constraints embedded in digital platform design, highlighting the need for privacy literacy interventions, gender-inclusive data infrastructures, and community-led digital health participation models in NSW.

The findings demonstrate that digital environments mediate LGBTQ+ identity development through complex social-ecological interactions. Technologies do not merely "reflect" stigma; they can also reproduce institutional norms through algorithmic categorization, platform architectures, and default data schemas [2,5,9]. However, when community-led spaces and identity-affirming networks are available, technology becomes a crucial site of resilience, especially for youth and questioning individuals who lack offline support [6,15].

Public-health strategies should therefore move beyond individual-behaviour framing toward digital-equity governance, emphasising:

(1)Privacy-literacy training embedded in education systems.

(2)Inclusive design of biometric and wearable platforms.

(3)Community-led sexual-health communication.

(4)Clearer data-residency and consent protections for health-adjacent digital systems in NSW.

Such approaches recognize identity safety as a determinant of mental health participation, rather than a personal responsibility alone.

6. Conclusion

This study shows that modern technologies significantly shape LGBTQ+ identity formation and coming-out anxiety in Sydney through intertwined individual, relational, community, and societal mechanisms. Technology simultaneously provides spaces of affirmation and risk, enabling exploration and belonging while exposing users to algorithmic surveillance, the circulation of stigma, and fears of involuntary outing. SEM-guided analysis highlights that anxiety emerges not

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only from personal vulnerability but from insufficient privacy literacy, relational pressures, gaps in inclusive education, and uncertainty in data-governance frameworks.

Future research should expand longitudinal tracking of digital-identity trajectories and examine platform-design interventions co-produced with LGBTQ+ communities. Policy priorities should include strengthened privacy regulations for wearable and biometric data, gender-diverse training datasets for algorithmic systems, and community-anchored digital health communication to advance public health equity across NSW.

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