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Psychological Effects of Cybercrime on Minorities: Short-Term and Long-Term Impacts

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Abstract

Objective: The objective of this study was to examine the psychological effects of cybercrime on individuals who belong to minority groups.

Method: This study utilized a literature review approach to analyze previous research on the topic. A range of databases were searched, including PubMed and PsycINFO.

Results: The findings of this study indicated that cybercrime can have both short-term and long-term psychological effects on individuals who belong to minority groups. The short-term effects include fear and anxiety, loss of trust, and post-traumatic stress disorder (PTSD). Long-term effects include chronic stress, depression and anxiety, social isolation, and financial impacts.

Conclusion: This study highlights the importance of addressing the psychological effects of cybercrime on minorities through supportive services such as counseling, therapy, and community support. Additionally, measures should be taken to prevent cybercrime and provide justice to victims. It is crucial to recognize the impact of cybercrime on minority individuals and provide adequate support to mitigate the psychological effects.

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References

1. Wall, D. Cybercrime: The transformation of crime in the information age. (2007).
2. Shinder, D. L. & Cross, M. Scene of the Cybercrime. (2008).
3. Lange, A. C., Duran, A. & Jackson, R. The state of LGBT and queer research in higher education revisited: Current academic houses and future possibilities. *Journal of College Student* (2019).
4. Gegenfurtner, A. & Gebhardt, M. Sexuality education including lesbian, gay, bisexual, and transgender (LGBT) issues in schools. *Educational Research Review* **22**, 215–222 (2017).
5. Chan, A. S. W., Ho, J. M. C. & Tang, P. M. K. Cancer and the LGBT Community. *J. Homosex.* **70**, 989–992 (2023).
6. Graves, K. LGBTQ education research in historical context. *LGBTQ issues in education: Advancing a research agenda* 23–42 (2015).
7. Marcum, C. D. & Higgins, G. E. Cybercrime. (2019).

8. Prasanthi, B. V. & Kanakam, P. Cyber forensic science to diagnose digital crimes-a study. *International Journal of* (2017).
9. Gayed, T. F., Lounis, H. & Bari, M. Cyber forensics: Representing and (im)proving the chain of custody using the semantic web. in *COGNITIVE 2012: The Fourth International Conference on Advanced Cognitive Technologies and Applications* 19–23 (Citeseer, 2012).
10. Mnyakin, M. Investigating the Impacts of AR, AI, and Website Optimization on Ecommerce Sales Growth. *RRST* **3**, 116–130 (2020).
11. Karat, C. M., Blom, J. O. & Karat, J. *Designing personalized user experiences in eCommerce*. (Springer, 2004).
12. Jaishankar, K. Cyber criminology: Evolving a novel discipline with a new journal. *International Journal of Cyber Criminology* (2007).
13. Telo, J. ANALYZING THE EFFECTIVENESS OF BEHAVIORAL BIOMETRICS IN AUTHENTICATION: A COMPREHENSIVE REVIEW. *Tensorgate Journal of Sustainable Technology and Infrastructure for Developing Countries* **2**, 19–36 (2019).
14. Nowaskie, D. Z. & Patel, A. U. How much is needed? Patient exposure and curricular education on medical students' LGBT cultural competency. *BMC Med. Educ.* **20**, 490 (2020).

15. Bonvicini, K. A. LGBT healthcare disparities: What progress have we made? *Patient Educ. Couns.* (2017).
16. Daley, A. & MacDonnell, J. A. “That would have been beneficial”: LGBTQ education for home-care service providers. *Health Soc. Care Community* (2015).
17. Matza, A. R., Sloan, C. A. & Kauth, M. R. Quality LGBT health education: A review of key reports and webinars. *Parent. Sci. Pract.* (2015).
18. Chan, A. S. K. & Ho, W. C. “My community doesn’t belong to me anymore!”: Tourism-driven spatial change and radicalized identity politics in Hong Kong. *Living in the Margins in Mainland China* (2020).
19. Renn, K. A. LGBT and Queer Research in Higher Education: The State and Status of the Field. *Educ. Res.* **39**, 132–141 (2010).
20. Bilodeau, B. L. & Renn, K. A. Analysis of LGBT identity development models and implications for practice. *New Dir. Stud. Serv.* **2005**, 25–39 (2005).
21. Carabez, R., Pellegrini, M., Mankovitz, A. & Eliason, M. “Never in all my years...”: Nurses’ education about LGBT health. *Journal of Professional* (2015).
22. Chan, A. S. K. The Production of Estranged Urban Space: Tourism--driven Community Change and Radicalised Identity Politics in Hong Kong Since the 2010s. (City University of Hong Kong, 2020).

23. Harichandran, V. S., Breitinger, F., Baggili, I. & Marrington, A. A cyber forensics needs analysis survey: Revisiting the domain's needs a decade later. *Comput. Secur.* **57**, 1–13 (2016).
24. Telo, J. Understanding Security Awareness Among Bank Customers: A Study Using Multiple Regression Analysis. *Sage Science Review of Educational Technology* **6**, 26–38 (2023).
25. Marcella, A., Jr & Menendez, D. Cyber forensics: a field manual for collecting, examining, and preserving evidence of computer crimes. (2010).
26. Baggili, I. & Breitinger, F. Data sources for advancing cyber forensics: What the social world has to offer. <https://cdn.aaai.org/ocs/10227/10227-45279-1-PB.pdf> (2015).
27. Shrivastava, G., Sharma, K., Khari, M. & Zohora, S. E. Role of Cyber Security and Cyber Forensics in India. in *Handbook of Research on Network Forensics and Analysis Techniques* 143–161 (IGI Global, 2018).
28. Harman, R. Continuing conversations: A review of LGBTQ Youth and Education: Policies and Practices. *J. LGBT Youth* **14**, 122–127 (2017).
29. Chan, A. S. W., Ho, J. M. C., Li, J. S. F. & Tam, H. L. Impacts of COVID-19 pandemic on psychological well-being of older chronic kidney disease patients. *Frontiers in Medicine* (2021).

30. Jones, T. Education policies: Potential impacts and implications in Australia and beyond. *J. LGBT Youth* **13**, 141–160 (2016).
31. Nardi, H. C. Theoretical approaches and policies in sexual diversity and educational in Brazil: A critical review. *J. LGBT Youth* **8**, 201–209 (2011).
32. Brinson, A., Robinson, A. & Rogers, M. A cyber forensics ontology: Creating a new approach to studying cyber forensics. *Digital Investigation* **3**, 37–43 (2006).
33. Telo, J. A Comparative Analysis of Network Security Technologies for Small and Large Enterprises. *International Journal of Business Intelligence and Big Data Analytics* **2**, 1–10 (2019).
34. Park, H., Cho, S. & Kwon, H.-C. Cyber Forensics Ontology for Cyber Criminal Investigation. in *Forensics in Telecommunications, Information and Multimedia* 160–165 (Springer Berlin Heidelberg, 2009).
35. Prasanthi, B. V. & Vishnu Institute of Technology. Cyber Forensic Tools: A Review. *Int. J. Eng. Trends Technol.* **41**, 266–271 (2016).
36. Telo, J. Blockchain Technology in Healthcare: A Review of Applications and Implications. *Journal of Advanced Analytics in Healthcare Management* **1**, 1–20 (2017).

37. McConnell, E. A., Birkett, M. A. & Mustanski, B. Typologies of Social Support and Associations with Mental Health Outcomes Among LGBT Youth. *LGBT Health* **2**, 55–61 (2015).
38. Eliason, M. J., Dibble, S. L. & Robertson, P. A. Lesbian, gay, bisexual, and transgender (LGBT) physicians' experiences in the workplace. *J. Homosex.* **58**, 1355–1371 (2011).
39. Sekoni, A. O., Gale, N. K., Manga-Atangana, B., Bhadhuri, A. & Jolly, K. The effects of educational curricula and training on LGBT-specific health issues for healthcare students and professionals: a mixed-method systematic review. *J. Int. AIDS Soc.* **20**, 21624 (2017).
40. Chan, A. S. W. *et al.* Impacts of psychological wellbeing with HIV/AIDS and cancer among sexual and gender minorities: A systematic review and meta-analysis. *Front Public Health* **10**, 912980 (2022).
41. Cahill, S. & Makadon, H. Sexual Orientation and Gender Identity Data Collection in Clinical Settings and in Electronic Health Records: A Key to Ending LGBT Health Disparities. *LGBT Health* **1**, 34–41 (2014).
42. Ryan, C., Russell, S. T., Huebner, D., Diaz, R. & Sanchez, J. Family acceptance in adolescence and the health of LGBT young adults. *J. Child Adolesc. Psychiatr. Nurs.* **23**, 205–213 (2010).

43. Balsam, K. F., Molina, Y., Beadnell, B., Simoni, J. & Walters, K. Measuring multiple minority stress: the LGBT People of Color Microaggressions Scale. *Cultur. Divers. Ethnic Minor. Psychol.* **17**, 163–174 (2011).
44. Chan, A. S. W., CPsychol, RSWPhD. Letter to the Editor: Advocating Worldwide Social Inclusion and Anti-Discrimination Among LGBT Community. *J. Homosex.* **70**, 779–781 (2023).
45. Gordon, S. & Ford, R. On the definition and classification of cybercrime. *Journal in computer virology* (2006).
46. Cho, C., Chin, S. & Chung, K. S. Cyber forensic for hadoop based cloud system. *International Journal of Security and its Applications* **6**, 83–90 (2012).
47. Luciano, L., Baggili, I., Topor, M., Casey, P. & Breitingner, F. Digital Forensics in the Next Five Years. in *Proceedings of the 13th International Conference on Availability, Reliability and Security* 1–14 (Association for Computing Machinery, 2018).
48. Telo, J. Web Traffic Prediction Using Autoregressive, LSTM, and XGBoost Time Series Models. *Web Traffic Prediction Using Autoregressive, LSTM, and XGBoost Time Series Models* **3**, 1–15 (2020).
49. Marcella, A. J. & Guillosoou, F. *Cyber forensics: From data to digital evidence*. (John Wiley & Sons, 2012).

50. Telo, J. Smart City Security Threats and Countermeasures in the Context of Emerging Technologies. *International Journal of Intelligent Automation and Computing* **6**, 31–45 (2023).
51. Walsh, D. & Hendrickson, S. G. Focusing on the “T” in LGBT: An online survey of related content in Texas nursing programs. *J. Nurs. Educ.* (2015).
52. Sequeira, G. M., Chakraborti, C. & Panunti, B. A. Integrating Lesbian, Gay, Bisexual, and Transgender (LGBT) Content Into Undergraduate Medical School Curricula: A Qualitative Study. *Ochsner J.* **12**, 379–382 (2012).
53. Sintos Coloma, R. Ladlad and Parrhesiastic Pedagogy: Unfurling LGBT Politics and Education in the Global South. *Curriculum Inquiry* (2013).
54. Chan, A. S. W. Book Review: Safe Is Not Enough: Better Schools for LGBTQ Students (Youth Development and Education Series). (2021).
55. Nowaskie, D. A national survey of U.S. psychiatry residents’ LGBT cultural competency: The importance of LGBT patient exposure and formal education. *J. Gay Lesbian Ment. Health* **24**, 375–391 (2020).
56. Flores, G. Toward a More Inclusive Multicultural Education: Methods for Including LGBT Themes in K-12 Classrooms. *Am. J. Sex. Educ.* **7**, 187–197 (2012).
57. Mayo, C. & Banks, J. A. *LGBTQ youth and education: Policies and practices*. (Teachers’ College Press, 2022).

58. Chan, A. S. W. & Tang, P. M. K. Application of Novel Psychoactive Substances: Chemsex and HIV/AIDS Policies Among Men Who Have Sex With Men in Hong Kong. *Front. Psychiatry* **12**, 680252 (2021).
59. Dardick, G. S. Cyber Forensics Assurance. (2010) doi:10.4225/75/57b2926c40cda.
60. Telo, J. Intrusion Detection with Supervised Machine Learning using SMOTE for Imbalanced Datasets. *Journal of Artificial Intelligence and Machine Learning in Management* **5**, 12–24 (2021).
61. Santanam, R., Sethumadhavan, M. & Virendra, M. *Cyber Security, Cyber Crime and Cyber Forensics: Applications and Perspectives*. (Information Science Reference, 2010).
62. Kotenko, I. V., Kolomeets, M., Chechulin, A. & Chevalier, Y. A visual analytics approach for the cyber forensics based on different views of the network traffic. *J. Wirel. Mob. Networks Ubiquitous Comput. Dependable Appl.* **9**, 57–73 (2018).
63. Patil, R. Y. & Devane, S. R. Unmasking of source identity, a step beyond in cyber forensic. in *Proceedings of the 10th International Conference on Security of Information and Networks* 157–164 (Association for Computing Machinery, 2017).

64. Telo, J. AI for Enhanced Healthcare Security: An Investigation of Anomaly Detection, Predictive Analytics, Access Control, Threat Intelligence, and Incident Response. *Journal of Advanced Analytics in Healthcare Management* **1**, 21–37 (2017).
65. Martin, J. I., Messinger, L., Kull, R. & Holmes, J. Council on Social Work Education–Lambda legal study of LGBT issues in social work. *Soc. Work Educ.* (2009).
66. Chan, A. S. W. Book review: the Educator’s guide to LGBT+ inclusion: a practical resource for K-12 teachers, administrators, and school support staff. (2021).
67. Meyer, E. J. The personal is political: LGBTQ education research and policy since 1993. *Educ. Forum* (2015).
68. Taylor, C. G., Meyer, E. J., Peter, T. & Ristock, J. Gaps between beliefs, perceptions, and practices: The Every Teacher Project on LGBTQ-inclusive education in Canadian schools. *Journal of LGBT* (2016).
69. Aragon, S. R., Poteat, V. P. & Espelage, D. L. The influence of peer victimization on educational outcomes for LGBTQ and non-LGBTQ high school students. *Journal of LGBT* (2014).

70. Hardacker, C. T., Rubinstein, B. & Hotton, A. Adding silver to the rainbow: the development of the nurses' health education about LGBT elders (HEALE) cultural competency curriculum. *Journal of Nursing* (2014).
71. Hirschtritt, M. E., Noy, G., Haller, E. & Forstein, M. LGBT-Specific Education in General Psychiatry Residency Programs: a Survey of Program Directors. *Acad. Psychiatry* **43**, 41–45 (2019).
72. Chan, A. S. W., Li, J. S. F., Ho, J. M. C., Tam, H. L. & Hsu, W. L. The systematic review and meta-analysis of Chronic Inflammation and Fibrosis in HIV/AIDS and Cancer: Impacts of Psychological Wellbeing among *Frontiers in Public*.
73. McQuade, S. C. Understanding and managing cybercrime. (2006).
74. Cech, E. A. & Rothwell, W. R. LGBTQ inequality in engineering education. *J. Eng. Educ.* **107**, 583–610 (2018).
75. Chan, A. S. W. Book review: the deviant's war: the homosexual vs. the United States of America. (2021).
76. Kull, R. M., Kosciw, J. G. & Greytak, E. A. Preparing School Counselors to Support LGBT Youth: The Roles of Graduate Education and Professional Development. *Professional School Counseling* **20**, 1096-2409–20.1a.13 (2017).

77. Cooper, M. B., Chacko, M. & Christner, J. Incorporating LGBT Health in an Undergraduate Medical Education Curriculum Through the Construct of Social Determinants of Health. *MedEdPORTAL* **14**, 10781 (2018).
78. Allen, L. Queering the academy: new directions in LGBT research in higher education. *Higher Education Research & Development* **34**, 681–684 (2015).
79. Keuroghlian, A. S., Ard, K. L. & Makadon, H. J. Advancing health equity for lesbian, gay, bisexual and transgender (LGBT) people through sexual health education and LGBT-affirming health care environments. *Sex. Health* **14**, 119–122 (2017).
80. Russell, S. T. & Fish, J. N. Mental Health in Lesbian, Gay, Bisexual, and Transgender (LGBT) Youth. *Annu. Rev. Clin. Psychol.* **12**, 465–487 (2016).
81. Almeida, J., Johnson, R. M., Corliss, H. L., Molnar, B. E. & Azrael, D. Emotional distress among LGBT youth: the influence of perceived discrimination based on sexual orientation. *J. Youth Adolesc.* **38**, 1001–1014 (2009).
82. Chan, A. S. W., Tang, P. M. K. & Yan, E. Chemsex and its risk factors associated with human immunodeficiency virus among men who have sex with men in Hong Kong. *World Journal of Virology* (2022).

83. Meyer, I. H. Minority stress and positive psychology: Convergences and divergences to understanding LGBT health. *Psychology of Sexual Orientation and Gender Diversity* **1**, 348–349 (2014).
84. Hermsillo, D., Cygan, H. R., Lemke, S., McIntosh, E. & Vail, M. Achieving health equity for LGBTQ+ adolescents. *J. Contin. Educ. Nurs.* **53**, 348–354 (2022).
85. Catalano, D. C. J. The paradoxes of social justice education: Experiences of LGBTQ+ social justice educational intervention facilitators. *J. Divers. High. Educ.* (2022) doi:10.1037/dhe0000436.
86. Chan, A. S. W., Ho, J. M. C., Tam, H. L., Hsu, W. L. & Tang, P. M. K. COVID-19, SARS, and MERS: the risk factor associated with depression and its impact on psychological well-being among sexual moralities. (2022).
87. Cornelius, E. & Fabro, M. *Recommended practice: Creating cyber forensics plans for control systems*. <https://www.osti.gov/biblio/944209> (2008) doi:10.2172/944209.
88. Telo, J. Supervised Machine Learning for Detecting Malicious URLs: An Evaluation of Different Models. *Sage Science Review of Applied Machine Learning* **5**, 30–46 (2022).
89. Stirland, J., Jones, K., Janicke, H., Wu, T. & Others. Developing cyber forensics for SCADA industrial control systems. in *Proceedings of the International*

Conference on Information Security and Cyber Forensics (Universiti Sultan Zainal Abidin Kuala Terengganu, Malaysia, 2014).

90. Nirkhi, S. & Dharaskar, R. V. Comparative study of Authorship Identification Techniques for Cyber Forensics Analysis. *arXiv [cs.CY]* (2013).
91. Anderson, R. *et al.* Measuring the Cost of Cybercrime. in *The Economics of Information Security and Privacy* (ed. Böhme, R.) 265–300 (Springer Berlin Heidelberg, 2013).
92. Göçmen, İ. & Yılmaz, V. Exploring Perceived Discrimination Among LGBT Individuals in Turkey in Education, Employment, and Health Care: Results of an Online Survey. *J. Homosex.* **64**, 1052–1068 (2017).
93. Chan, A. S. W., Ho, J. M. C., Tam, H. L. & Tang, P. M. K. Book review: successful aging: a neuroscientist explores the power and potential of our lives. *Front. Psychol.* (2021).
94. Navarro, M. A., Hoffman, L., Crankshaw, E. C., Guillory, J. & Jacobs, S. LGBT Identity and Its Influence on Perceived Effectiveness of Advertisements from a LGBT Tobacco Public Education Campaign. *J. Health Commun.* **24**, 469–481 (2019).
95. McNiel, P. L. & Elertson, K. M. Advocacy and Awareness: Integrating LGBTQ Health Education Into the Prelicensure Curriculum. *J. Nurs. Educ.* **57**, 312–314 (2018).

96. Korolczuk, E. The fight against 'gender' and "LGBT ideology": new developments in Poland. *European journal of politics and gender* (2020).
97. Chan, A. S. W., Wu, D., Lo, I. P. Y., Ho, J. M. C. & Yan, E. Diversity and Inclusion: Impacts on Psychological Wellbeing Among Lesbian, Gay, Bisexual, Transgender, and Queer Communities. *Front. Psychol.* **13**, 726343 (2022).
98. Eickhoff, C. Identifying Gaps in LGBTQ Health Education in Baccalaureate Undergraduate Nursing Programs. *J. Nurs. Educ.* **60**, 552–558 (2021).
99. Baams, L., Dubas, J. S. & van Aken, M. A. G. Comprehensive Sexuality Education as a Longitudinal Predictor of LGBTQ Name-Calling and Perceived Willingness to Intervene in School. *J. Youth Adolesc.* **46**, 931–942 (2017).
100. Nash, C. J. & Browne, K. Resisting the mainstreaming of LGBT equalities in Canadian and British Schools: Sex education and trans school friends. *Environment and Planning C: Politics and Space* **39**, 74–93 (2021).
101. Landi, D. LGBTQ youth, physical education, and sexuality education: Affect, curriculum, and (new) materialism. (2019).
102. Chan, A. S. W., Lo, I. P. Y. & Yan, E. Health and Social Inclusion: The Impact of Psychological Well-Being and Suicide Attempts Among Older Men Who Have Sex With Men. *Am. J. Mens. Health* **16**, 15579883221120984 (2022).

103. Utamsingh, P. D., Kenya, S., Lebron, C. N. & Carrasquillo, O. Beyond sensitivity. LGBT healthcare training in U.s. medical schools: A review of the literature. *Am. J. Sex. Educ.* **12**, 148–169 (2017).
104. Russell, S. T., Horn, S., Kosciw, J. & Saewyc, E. Safe Schools Policy for LGBTQ Students and commentaries. *Soc. Policy Rep.* **24**, 1–25 (2010).
105. Telo, J. PRIVACY AND CYBERSECURITY CONCERNS IN SMART GOVERNANCE SYSTEMS IN DEVELOPING COUNTRIES. *Tensorgate Journal of Sustainable Technology and Infrastructure for Developing Countries* **4**, 1–13 (2021).
106. McGlashan, H. & Fitzpatrick, K. LGBTQ youth activism and school: Challenging sexuality and gender norms. *Health Educ.* (2017).
107. Chan, A. S. W. Book review: the gay revolution: the story of the struggle. (2021).
108. Landi, D., Flory, S. B. & Safron, C. LGBTQ Research in physical education: a rising tide? *Phys. Educ. Sport Pedagogy* (2020).
109. Jacobs, J. & Freundlich, M. Achieving permanency for LGBTQ youth. *Child Welfare* **85**, 299–316 (2006).
110. Elia, J. P. & Eliason, M. J. Dangerous Omissions: Abstinence-Only-Until-Marriage School-Based Sexuality Education and the Betrayal of LGBTQ Youth. *Am. J. Sex. Educ.* **5**, 17–35 (2010).

111. Furnell, S. *Cybercrime: Vandalizing the information society*. (2002).
112. Holt, T. J. & Bossler, A. M. *Cybercrime in progress: Theory and prevention of technology-enabled offenses*. (2015).
113. Broadhurst, R. & Chang, L. Y. C. *Cybercrime in Asia: Trends and Challenges*. in *Handbook of Asian Criminology* (eds. Liu, J., Heberton, B. & Jou, S.) 49–63 (Springer New York, 2013).