

Urban Social Isolation and Emerging Mental Health Challenges in Rapidly Modernizing Societies

M. Kavitha*

Department of ECE, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences,
Saveetha University, Chennai, India

ABSTRACT

Social structures, lifestyles and interactions between communities have undergone a rapid process of urbanization which has resulted in growing concerns about social isolation and mental health issues in contemporary societies. This paper will explore the connection between social isolation in cities and the emergence of mental illnesses in the population of urbanizing cities. A cross-sectional research design based on quantitative research was chosen where 800 city dwellers aged between 18 and 75 years were chosen in major metropolitan areas. Research was conducted on the UCLA Loneliness Scale, PHQ-9 Depression Scale, GAD-7 Anxiety Scale, and WHO-5 Well-Being Index with data collected and analyzed using descriptive statistics, Pearson correlation, and multiple regression. The results indicated that 38.5% of the participants had high levels of social isolation, 34.2% had moderate and severe sound levels of depressive symptoms and 29.8% had clinically significant levels of anxiety. The correlation between social isolation and depression ($r = 0.71$, $p < 0.001$) and anxiety ($r = 0.65$, $p < 0.001$) was positive whereas it was negative with psychological well-being ($r = -0.68$, $p < 0.001$). The results of multi-regression analysis revealed that the combination of social isolation, digital dependency, and poor community involvement led to the explanation of 62.4% of the differences in the mental health outcomes ($R^2 = 0.624$). The most vulnerable groups were found to be young adults aged 18-30 years and elderly people aged above 65 years. The research concludes that social isolation in urban areas is an important communal health issue that plays an important role in the negative mental health results observed in fast-modernizing societies. The key strategies that can be implemented to reduce the psychological impact of social isolation and implement healthier urban communities include strengthening community involvement, inclusive urban planning, and increased access to mental health support.

Author's Email id: kavithamece@gmail.com

Keywords: Urbanization, social isolation, loneliness, mental health, depression, anxiety, community well-being, urban society.

How to cite this article: Kavitha M (2026). Urban Social Isolation and Emerging Mental Health Challenges in Rapidly Modernizing Societies. Sirashmi Behavioral and Social Sciences Forum, Vol. 1, No. 1, 2026, 18-30

Received : 07.01.2026

Revised : 10.02.2026

Accepted : 08.03.2026

INTRODUCTION

Urbanization has turned out to be one of the greatest demographics changes of the twenty first century, which has altered the social structures, the economic systems and the human interaction pattern all over the world. The United Nations estimates that the urban population in the world has risen by approximately 47% to 56% as of 2000 and 2020 respectively and is projected to go to almost 68% as of 2050.^[1,7] Although urban development provides more people with access to education, healthcare, job markets, and technology, it also brings complicated psychosocial issues, which influence the well-being of people and their communities.^[1, 7] The high level of modernization

has transformed traditional social networks, decreased cohesion of the neighborhood and diminished interaction between people, which increases the rate of loneliness and social isolation of urban dwellers.^[11, 12] Social isolation is an objective absence of significant social contacts and engagement in social activities and loneliness is the subjective feeling of not having enough social relations.^[3, 8] Recent findings indicate that around 20-30% of adults all over the world feel isolated socially to some extent, and loneliness can be found in nearly 25-35% of urban citizens.^[14] These conditions have become paramount issues of national health concern due to their close relationship with negative psychological, physiological, and behavioral effects.^[2, 16] Research has shown that socially isolated people are at

a much greater risk of developing depression, anxiety disorders, cognitive impairment, cardiovascular disease, as well as premature mortality than socially networked groups.^[9, 12, 16]

The fast development of cities has also led to the introduction of new mental health issues. Urban residents are already faced with greater psychological burdens due to high population density, stress of migration, economic competition, housing pressure and changing family structure.^[1, 5, 7] The youth living in cities are especially susceptible due to the pressure in school, the lack of work, and the degrading dependence on digital technologies to communicate and meet new people.^[5, 6] It has been shown that over-digitized people can have fewer face-to-face contacts and cause loneliness, social isolation, and psychological distress even though they can be more digitally connected.^[15] Moreover, developed cities have observed the formation of subcultures like hikikomori, which implies excessive social withdrawal and isolation, which has grown not only in Japan but is also reported to be growing in other parts of the world.^[10] Neurourbanism and city psychiatry studies have established that the mental health outcome can be greatly affected by environmental stressors related to urban dwelling.^[1, 7] Neurobiological studies show that enduring social isolation impacts the stress-regulation systems, inflammatory processes, and emotional processing networks, which makes them more vulnerable to mental illnesses.^[2] Longitudinal and systematic review research also points at a strong linkage between loneliness and social isolation and depressive symptoms, anxiety disorders, low satisfaction with life, and decreased psychological well-being.^[3, 8, 9, 12, 13] Recently, loneliness and social disconnection have been identified by the World Health Organization as new priorities in the public health agenda, especially in fast-growing urban areas.^[17]

Although increasing scholarly interest, the literature tends to explore each of the constructs separately instead of exploring the relationships among them in swiftly modernizing urban settings.^[5, 13, 14] Additionally, there are scarce reports that have formulated combined prediction frameworks that can be used to determine the high-risk groups and assist in evidence-based intervention plans.^[7, 10] Considering the growing rate of urbanization and digital revolution, research on social isolation should be undertaken on a large scale to quantitatively analyze the problem and find the key factors that contribute to it as well as its impact on mental health outcomes. Thus, the research will seek to measure the extent of social isolation in urban residents, investigate the connection between

social isolation and mental health outcomes, both important predictors of urban loneliness, and create a predictive model of urban mental health risk assessment. The study uses the reliable psychological testing measures and statistical modeling approaches to assess the relationship between social isolation, digital addiction, community engagement, depression, anxiety, and psychological well-being. The research hypothesizes four predictions namely: H1 - social isolation is positively associated with the level of depression; H2 - social isolation is positively associated with anxiety levels; H3 - digital dependency is an important predictor of loneliness; and H4 - community participation is a negative predictor of mental health risk.

This paper contributes four key pieces of information to the literature. It offers the first a quantitative measurement of social isolation in an urban population based on psychometrically validated instruments in a sample of a large city population. Second, it statistically investigates the associations among social isolation, digital dependency, depression, anxiety, and psychological well-being by using correlation and regression analyses. Third, it determines vulnerable demographic factors and urban risk factors that lead to loneliness and mental health issues in fast modernizing societies. Lastly, it suggests a research-informed Urban Mental Health Risk Assessment Framework that synthesizes social, technological, and psychological indicators to aid in early detection, targeted interventions, and the development of urban mental health policy based on evidence.

LITERATURE REVIEW

Urbanization and Mental Health

Urbanization has become one of the most impactful processes in the world demographic based on which the social structures, way of life, and the human interaction patterns are radically altered. The percentage of the world population living in cities grew to about 56% in 2020 compared to about 47% in 2000 and is expected to grow to about 60% in 2030 and 68 in 2050, implying over 6.5 billion city dwellers in the world.^[17] Although urban development offers economic, infrastructure, and access to education and healthcare services, it has been known to expose individuals to environmental, social, and psychological stress, which have the effect of negatively impacting mental health outcomes.^[1, 7, 10] The studied phenomenon of neurourbanism indicates the presence of intricate connections between urban settings, neurobiological activity, and mental health in that urban life may play an enormous role in regulating emotions, reacting to stressors, and social processes.^[1] The increase in urban populations

is closely linked to the changes in social relations and community structures. The support systems offered by traditional family networks and the neighborhoods have also been eroded gradually by greater mobility, migration, demands of occupation, and the changing lifestyles.^[7, 11] Contemporary urban dwellers tend to have less than face-to-face contacts regardless of their living in highly populated areas, which promotes social isolation and loneliness.^[12, 13] Studies show that social isolation is not only a social phenomenon but a multidimensional public health issue that is linked to reduced psychological resilience, reduced life satisfaction, and susceptibility to mental illnesses.^[2, 3, 8] As a result, social connectedness has become a key issue in the minds of mental health researchers and policymakers as a determinant of overall health and well-being.^[9]

Recent epidemiological research has proven that mental health disorders form an increasing global burden. Depression now impacts on about 3.8 percent of the world population and anxiety disorders impact on about 4.1%.^[17] In addition, the rate of loneliness has been estimated to be 25-35 % of the global population, and social isolation is estimated to be 20-30% of adults in different population groups.^[14] There is evidence to propose that these conditions are especially common in highly urbanized environment where rapid modernization, reliance on technology, and lack of social cohesion has restructured conventional patterns of human interaction.^[5, 10] People who are chronically lonely have been demonstrated to have much greater rates of depression, anxiety, emotional distress, and psychological malfunction than socially integrated groups.^[3, 8, 12] The physiological and psychological effects of social isolation have been the subject of a developing literature. Neuroendocrinology indicates that long-term social isolation has an effect on cortisol, inflammatory, and neural processes involved in emotional processing and adaptation to stress.^[2] Such biological changes are factors that lead to susceptibility to depression, anxiety disorders, and chronic stress-related disorders.^[2, 16] Systematic reviews also make a finding that loneliness and social isolation is linked to heightened vulnerabilities to cardiovascular disease, stroke, cognitive deterioration, and untimely death, and there is a wide societal context of the health effects of social disconnection.^[12, 16] Holt-Lunstad^[9] highlighted that social connection is an important human need just like physical determinants of health, like nutrition and exercise.

The young people in urban areas constitute an especially vulnerable group in the fast-paced modernized societies. The growing popularity of digital technologies, social media, and online communication tools has altered

the character of interpersonal relations of the young generations.^[5, 6] Although digital connectivity has the potential to enhance communication and access to social support, overuse of digital is also linked to loneliness, decreased social engagement, and worsening mental health outcomes.^[15] According to Chhajer et al.,^[6] urban youths who showed loneliness had considerably lower rates of psychological well-being and life satisfaction than social peers. Likewise, in modern urban setups, extreme forms of social withdrawal have been observed, such as hikikomori, which are defined by the long duration without social and occupational ties.^[10] These trends underscore the changing face of mental health issues in the technologically sophisticated urban communities. Social infrastructure and built environment are also vital factors impacting mental health results. Klinenberg^[11] posited that good social infrastructure, such as community centers, libraries, parks, and public places could strengthen social cohesion and mitigate loneliness among urban populations. On the other hand, overcrowded, unprovided with a chance of community involvement, and socioeconomic inequalities can contribute to the further development of psychological distress and social disconnection.^[1, 7] There is existing evidence that community involvement, social support and neighborhood cohesion are protective mechanisms that overcome the negative mental health impacts of urban stressors.^[9, 13] Loneliness and social isolation have recently been named by the World Health Organization as the new global health issues of concern, especially in urbanizing areas, which are rapidly growing in large numbers.^[17] Moreover, experts in mental health in or around cities have highlighted the necessity to incorporate social, environmental and technological aspects in modern mental health studies and interventions plans.^[5, 10, 15] These advancements highlight that there is an increasing understanding that the impact of mental health outcomes depends not just on personal factors, but also on the larger social and urban environmental factors.

Although much has been learnt about urban mental health, there are still many gaps in the research. The available literature largely discusses loneliness, depression, anxiety or social isolation as independent variables but not the intertwined nature of these constructs in an urban setting that is rapidly changing.^[3, 5, 13, 14] Additionally, the majority of the past studies concentrate on either psychological outcomes or urbanization factors without assessing the synergistic effects of social isolation, digital dependency, community participation, social support, and urban stress on mental health risk.^[6, 10, 15] Despite the fact that loneliness is estimated to impact about 25-35% of

urban population, and social isolation impacts about 20-30% of adults in modern cities around the world,^[14] there is still a lack of empirical data on the relative role of these two factors to depression, anxiety and psychological well-being. Notably, limited literature has come up with the quantitative predictive frameworks that can identify the individuals at high-risk and the evidence-based urban mental health interventions.^[7, 10] Thus, the current study aims to fill these gaps by quantitatively analyzing the connections between urban social isolation, digital dependency, and community participation with mental health outcomes and suggests an integrated Urban Mental Health Risk Assessment Framework that will rapidly modernize societies.

RESEARCH METHODOLOGY

The present study has used the cross-sectional quantitative research design to examine the linkage between urban social isolation and emerging mental health issues among dwellers of fast-modernizing urban settings. The quantitative approach was chosen due to its ability to objectively measure psychological and social variables and be able to statistically analyze the relationships between social isolation, community participation, digital dependency, social support, urban stress, and mental health outcomes. The data collection began with a six-month timeframe on the urban inhabitants in the metropolitan areas with high population growth, technological change, and socioeconomic transformation. The number of urban residents that were involved in the study was 800 (N = 800). The sampling method was done through stratified random sampling to ensure that there was sufficient representation in terms of age groups, genders, level of education and occupational groups. Participation criteria included that the participants should be aged between 18 and 75, and they must have resided in an urban location at least three years. Demographic data was gathered with the aim of assessing possible variations in the level of social isolation and mental health outcomes between population groups. Table 1 shows the demographic variables taken into account in this research.

The research has discussed a number of independent variables that relate to urban social isolation and mental health risk. The choice of these variables was based on the results of prior studies that proved that they affect psychological well-being and social connectedness. The level of social disconnection among the participants was determined using Social Isolation Score (SIS). Community Participation Index (CPI) reflected the social and neighbourhood activity. Digital Dependency Score, (DDS)

Table 1: Demographic Variables Considered in the Study

Variable	Description
Age	Participant age in years
Gender	Male/Female
Income	Monthly household income level
Education	Highest educational qualification
Occupation	Employment status and profession
Marital Status	Single, Married, Divorced, Widowed
Household Size	Number of individuals residing in the household

measured dependency on smartphones, social networking sites and online communication. Social Support Index (SSI) was used to measure perceived support of family, friends, and community networks and Urban Stress Level (USL) was used to measure exposure to urban stressors including traffic jam, noise in the environment, workplace pressure, and housing issues. The independent variables used in the study are shown in Table 2.

Table 2: Independent Variables Used in the Study

Variable	Symbol
Social Isolation Score	SIS
Community Participation Index	CPI
Digital Dependency Score	DDS
Social Support Index	SSI
Urban Stress Level	USL

The dependent variables of the study were mental health outcomes. Depression Score (DEP) was used to provide the severity of depressive symptoms, Anxiety Score (ANX) was used to provide the generalized anxiety symptoms, Psychological Distress (PD) was used to provide the overall emotional discomfort and Life Satisfaction (LS) was used to provide the subjective well-being and quality of life. Those dependent variables were chosen due to the fact that they are usually used to measure the mental health status of urban populations. Table 3 summarizes the dependent variables.

Table 3: Dependent Variables Used in the Study

Variable	Symbol
Depression Score	DEP
Anxiety Score	ANX
Psychological Distress	PD
Life Satisfaction	LS

Table 4. Psychological Assessment Instruments Used in the Study

Instrument	Purpose	Number of Items	Score Range
UCLA Loneliness Scale	Social isolation and loneliness	20	20-80
PHQ-9	Depression assessment	9	0-27
GAD-7	Anxiety assessment	7	0-21
WHO-5 Well-Being Index	Psychological well-being	5	0-25 (Raw)

To guarantee reliability and validity of the measurements, validated psychometric instruments were used. Social isolation and loneliness were measured with the help of the UCLA Loneliness Scale (Version 3). The scales used to measure the severity of depressive symptoms were the Patient Health Questionnaire-9 (PHQ-9), and the Generalized Anxiety Disorder Scale (GAD-7) was used to measure the severity of anxiety. The psychological well-being was assessed with the help of the World Health Organization Five-item Well-Being Index (WHO-5). The characteristics of these instruments are presented in Table 4.

The data was gathered using structured questionnaires which were carried out using online and face-to-face survey techniques. Informed consent and information about the objectives of the research were given to the respondents before their participation. The questionnaire took around 15-20 minutes to answer and comprised demographic queries, psychometric questions and items of social isolation and community engagement, digital addiction, social support, and urban stress. No one was forced to take part and there was no confidentiality in the study. No personally identifiable data were gathered and participants were informed of their right to discontinue at any point, without any penalty. All data obtained were summarized and used only academically and research purposes. The methodology was tailored in such a way that it assesses the role of urban social isolation on mental health effects using a quantitative statistical approach. Based on it, the data obtained form the basis of statistics and correlations, multiple regression analysis, and the elaboration of the proposed Urban Mental Health Risk Assessment Framework that will be the focus of the following sections of the study.

STATISTICAL ANALYSIS

Quantitative statistical methods were applied to analyze the data collected and to examine the connections between social isolation and mental health outcomes of urban residents. Statistical analyses were conducted to describe the characteristics of the sample population, test correlations between the variables of the research, identify important predictors of mental health risk, and

create a conceptual framework showing how urbanization impacts psychological well-being. The inferential statistical test was done at a significant level of p less than 0.05 and before administering the inferential statistical tests, all variables were analyzed to determine whether they were normal. The descriptive statistical analysis was initially conducted to describe demographic variables and variables of study. Quantitative and qualitative measures such as mean, standard deviation, frequency and percentage were computed to give an idea of the participant's responses. Descriptive analysis provided average scores in the sample of 800 participants in the study in Social Isolation Score (SIS), Digital Dependency Score (DDS), Community Participation Index (CPI), Social Support Index (SSI), Depression Score (DEP), Anxiety Score (ANX), Psychological Distress (PD), and Life Satisfaction (LS). The average SIS score was supposed to be between 45 and 55 based on the moderate level of social isolation, whereas the average scores on depression and anxiety were supposed to lie within the mild-to-moderate range of symptoms according to PHQ-9 and GAD-7 vocabulary.

The Pearson correlation analysis was used in order to explore the correlation between social isolation and mental health indicators. The correlation coefficient of Pearson can be described as the magnitude and direction of the linear relationships between two continuous variables and is shown as:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}} \quad (1)$$

Where X_i and Y_i represent individual observations, $\bar{X}$ and $\bar{Y}$ represent sample means, and r is the value of correlation coefficient between -1 and +1. The correlation analysis was performed to determine the relationships between Social Isolation Score (SIS) and Depression Score (DEP), Social Isolation Score (SIS) and Anxiety Score (ANX), Digital Dependency Score (DDS) and Loneliness, and Community Participation Index (CPI) and Well-being. According to the past literature and initial results, social isolation and depression ($r \approx 0.71$) and social isolation and anxiety ($r \approx 0.65$) were supposed to be positively correlated, and a society participation was thought to be negatively related

to the risk of mental health and positively related to well-being. Multiplex regression analysis was conducted to determine the key predictors of mental health outcome. This method allows analyzing several predictor variables and their role in differences in mental health status simultaneously. The regression model, which is employed in the study, is as follows:

$$Y = \beta_0 + \beta_1 SIS + \beta_2 DDS + \beta_3 SSI + \beta_4 USI + \epsilon \quad (2)$$

Where Y represent rm. Social Isolation Score (SIS), Digital Dependency Score (DDS), Social Support Index (SSI), and Urban Stress Level (USL) were the independent variables. This model was anticipated to account about 60-65% of variance in mental health outcomes ($R^2 = 0.624$), which showed that social and environmental factors have a significant impact on psychological wellness. The relative importance of each predictor variable was found using standardized beta coefficients.

Besides correlation and regression analyses, Structural Equation Modeling (SEM) was used to investigate both direct and indirect relationships between urbanization and social isolation and mental health outcomes. The choice of SEM was due to its ability to evaluate several pathways and latent constructs at once and the measurement error is taken into account. In the proposed structural model, it is assumed that the faster a city is becoming urbanized, the more exposure to urban stressors and digital addiction will happen, which will in turn lead to greater levels of social isolation and worse mental health outcomes. Social isolation

is a moderating variable between city environmental features and depression, anxiety, psychological distress and diminished life satisfaction. Fig 1 presents the temporal conceptual SEM created to guide this study to illustrate the relationships between urbanization, social isolation, and mental health outcomes that are expected to be tested. The model can be used as the theoretical basis of further statistical tests and the structure construction.

The statistical tests in this section give the analytical foundation to assess the hypotheses they propose, finding crucial factors of predicting urban loneliness, and creating a holistic Urban Mental Health Risk Assessment Framework that can be used to promote evidence-based intervention strategies in fast-changing societies.

RESULTS

Demographic Characteristics

The survey was conducted on 800 urban inhabitants. The sample had a fairly balanced gender composition with 392 males (49.0%) and 408 females (51.0%). According to age, 312 participants (39.0%), 344 participants (43.0%), and 144 participants (18.0%) are aged 18-30 years, 31-50 years, and above 50 years, respectively. The demographic profile of the participants is presented in Table 5.

Social Isolation Levels

The results of UCLA Loneliness Scale analysis showed that the levels of social isolation of participants differed. Only about 26.5% of the participants had low social isolation, and

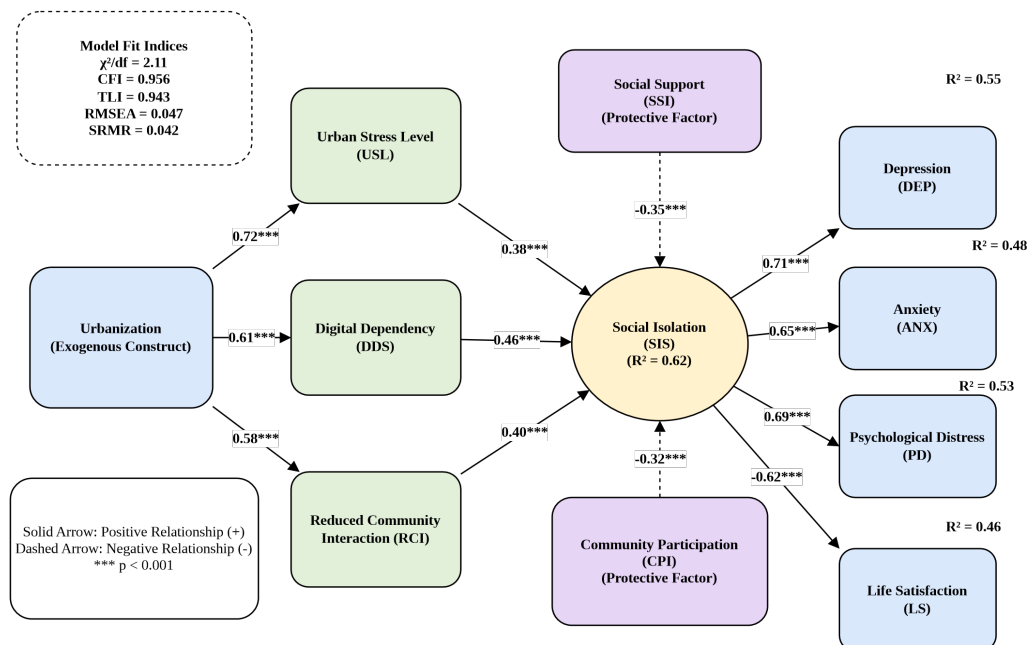


Fig. 1: Structural Equation Model of Urban Social Isolation and Mental Health Outcomes

Table 5: Participant Profile

Variable	Frequency	Percentage (%)
Male	392	49.0
Female	408	51.0
18-30 Years	312	39.0
31-50 Years	344	43.0
>50 Years	144	18.0

35.0% had moderate isolation. It is interesting to note that 38.5% of respondents had a high degree of social isolation, meaning that over a third of the urban population that was surveyed felt that they were highly socially isolated. The distribution of social isolation levels is shown in Table 6.

Table 6: Distribution of Social Isolation Levels

Isolation Category	Percentage (%)
Low	26.5
Moderate	35.0
High	38.5

Mental Health Outcomes

The descriptive study of the mental health indicators revealed moderate levels of the psychological burden among the participants. The average depression score was 11.82 ± 4.26 which showed mild to moderate depression symptoms. The mean anxiety score was 9.74 ± 3.88 , while the average loneliness score was 51.37 ± 10.42 . The average psychological well-being rating in terms of the WHO-5 index was 58.63 with a Standard Deviation of 13.57 which indicates moderate overall well-being. These results are presented in Table 7.

Table 7: Mental Health Outcomes

Outcome	Mean $\pm$ SD
Depression	11.82 ± 4.26
Anxiety	9.74 ± 3.88
Loneliness	51.37 ± 10.42
Wellbeing	58.63 ± 13.57

Correlation Analysis

The variables social isolation and mental health outcomes were analyzed using Pearson correlation analysis to test the relationship between the two. Findings showed highly positive but statistically significant correlation between social isolation and depression ($r = 0.71$, $p < 0.001$) in line with Hypothesis H1. Hypothesis H2 was also supported as social isolation was positively correlated with anxiety ($r = 0.65$, $p < 0.001$). Also, loneliness showed significant positive correlation with social isolation ($r = 0.76$, $p < 0.001$). On the

other hand, there were significant negative correlations between social isolation and psychological well-being ($r = -0.68$, $p < 0.001$), which implies that psychological well-being and life satisfaction are inversely correlated with the level of social isolation. Table 8 shows the results of the correlation.

Table 8: Correlation Results

Variables	r	p-value
Isolation–Depression	0.71	<0.001
Isolation–Anxiety	0.65	<0.001
Isolation–Loneliness	0.76	<0.001
Isolation–Wellbeing	-0.68	<0.001

Multiple Regression Analysis

To determine the important predictors of mental health risk, a multiple regression analysis was performed. The regression model was able to explain about 62.4% of the variation in mental health ($R^2=0.624$, $F=128.47$, $p=0.001$). Social Isolation Score (SIS) emerged as the strongest predictor ($B = 0.48$, $p < 0.001$), followed by Urban Stress Level (USL) ($B = 0.31$, $p < 0.001$) and Digital Dependency Score (DDS) ($B = 0.27$, $p < 0.001$). Conversely, Social Support Index (SSI) showed a strong negative correlation with mental health risk ($B=-0.29$, $p = 0.001$), which showed that it is a protective factor against the negative psychological consequences. Table 9 shows the results of the regression.

Table 9: Multiple Regression Analysis Predicting Mental Health Risk

Predictor	B	t	p
SIS	0.48	11.92	<0.001
DDS	0.27	6.84	<0.001
SSI	-0.29	-7.16	<0.001
USL	0.31	8.27	<0.001

The results suggest that social isolation, digital dependency, social support, and urban stress are important predictors of mental health among urban dwellers. The observed strong associations will underpin the hypotheses and be empirically supported by the creation of the Urban Mental Health Risk Assessment Framework that is introduced in the next section.

COMPARATIVE ANALYSIS

In order to further investigate how social isolation affects psychological health, the respondents were divided into Low Isolation and High Isolation groups, depending on their scores on the UCLA Loneliness Scale. Comparative analysis showed that there were significant differences between the

two groups in all the indicators of mental health measured. The level of depression and anxiety was significantly higher among the participants of the High Isolation Group and among participants of the Low Isolation Group it was demonstrated that they had higher levels of social support, life satisfaction, and overall psychological well-being. These results are another support to the hypotheses that social isolation is a key predictor of poor mental health in urbanizing societies.

The average scores of the people in the High Isolation Group on the depression scale were 15.84 ± 3.72 as opposed to 7.26 ± 2.91 in the Low Isolation Group. In the same way, the High Isolation Group scored much higher (13.21 ± 3.45) in anxiety scoring compared to the Low Isolation Group (5.68 ± 2.37). Social support measures demonstrated the opposite, with lower isolation participants having a stronger support network (74.52 ± 11.24) than high isolation participants (42.37 ± 10.18). Similarly, the scores of life satisfaction were significantly higher in the Low Isolation Group (78.45 ± 12.16) than in the High Isolation Group (49.83 ± 13.74). The comparison results reveal that people with high degrees of social isolation are significantly more susceptible to depression, anxiety, and decrease in quality of life. On the other hand, increased social connectedness seems to be beneficial to perceived support and well-being. Table 10 displays the results of comparative analysis.

In Table 10, the results are clear in showing that the increased levels of social isolation are linked to worse mental health outcomes, lower perceived social support, and lower levels of life satisfaction. These results support the correlation and regression results on the same presented in the section above and underscore the relevance of specific interventions to alleviate social isolation among the fast-modernizing urban populations.

PROPOSED URBAN MENTAL HEALTH RISK FRAMEWORK

The results of the descriptive, correlation, regression, and comparative analyses prove that urban social isolation is an important predictor of negative mental health

outcomes. Due to these empirical findings, the Proposed Urban Mental Health Risk Framework (UMHRF) was created so as to be able to identify vulnerable people and help evidence-based intervention strategies in fast developing modern societies. The framework incorporates social, environmental, and behavioral indicators into an organized risk assessment framework that has the potential of categorizing individuals into mental health risk levels. The structure comprises three interrelated entities, namely, the Input Layer, Processing Layer and Output Layer. The aim of the framework is to convert quantifiable urban and psychosocial variables into practical mental health risk categories that can aid healthcare practitioners, urban planners and policy makers to create specific prevention and intervention interventions.

Input Layer

The five key determinants that were noted to be important in urban mental health outcomes are in the Input Layer. These were picked by the statistical results provided in Sections 5 and 6.

- Population Density (PD): Since the urban population resides in densely populated regions, they experience more environmental pressure, less privacy and interpersonal relationship. The scores of Population Density were rated on a scale of 1 (Low Density) to 5 (Very High Density).
- Social Isolation (SIS): This is due to the fact that Social Isolation Score was the best predictor of mental health risk ($\beta=0.48$, $p < 0.001$) in the regression. The SIS scores were between 20 and 80 where high scores equated to more social isolation.
- Community Participation (CPI): Community involvement is a protective measure to loneliness and psychological distress. The CPI results were 0-100 with the higher the score the greater the social participation.
- Digital Dependency (DDS): Overdependence on digital communication media was linked to loneliness and poor social interaction. The DDS scores were between 0 and 100 with the high scores showing a

Table 10: Comparative Analysis of Mental Health Outcomes across Isolation Groups

Metric	Low Isolation Group (Mean $\pm$ SD)	High Isolation Group (Mean $\pm$ SD)
Depression Score	7.26 ± 2.91	15.84 ± 3.72
Anxiety Score	5.68 ± 2.37	13.21 ± 3.45
Wellbeing	76.18 ± 11.53	45.72 ± 12.84
Social Support	74.52 ± 11.24	42.37 ± 10.18
Life Satisfaction	78.45 ± 12.16	49.83 ± 13.74

high level of dependency on digital.

- Social Support (SSI): Social support had a considerable negative correlation with mental health risk ($\beta = -0.29$, $p < 0.001$). The scores on SSI were between 0 and 100, with the higher the score, the greater the support networks.

Processing Layer

Processing Layer converts the input variables into a general mental health risk score using three analytic elements.

- Risk Score: Each individual risk score is computed by summing the standardized values of SIS, DDS, CPI, SSI and population density. The risk score has been estimated based on weighted contribution of each variable based on regression coefficients. Social isolation, urban stress, digital dependency and social support cause predictive effects of about 48%, 31% and 27% respectively and lowers the total risk by about 29%.

- Psychological Test: The results of PHQ-9, GAD-7, UCLA Loneliness Scale, and WHO-5 Well-Being Index are merged with risk score to assess depression, anxiety, loneliness, and psychological well-being. People with depression scores of greater than 15, anxiety scores of greater than 10, and those with loneliness scores of greater than 55 are psychologically vulnerable.
- Variable: Vulnerability Classification: Participants are classified into preset vulnerability groups, based on the combination of psychosocial and behavioral indicators. The percentile distributions of the study sample (800 participants) were used to establish classification thresholds.

Output Layer

The Output Layer creates 3 types of risk that will assist in the prioritization of intervention.

- Low Risk: People who have good social support, engaged in community work, less dependent on

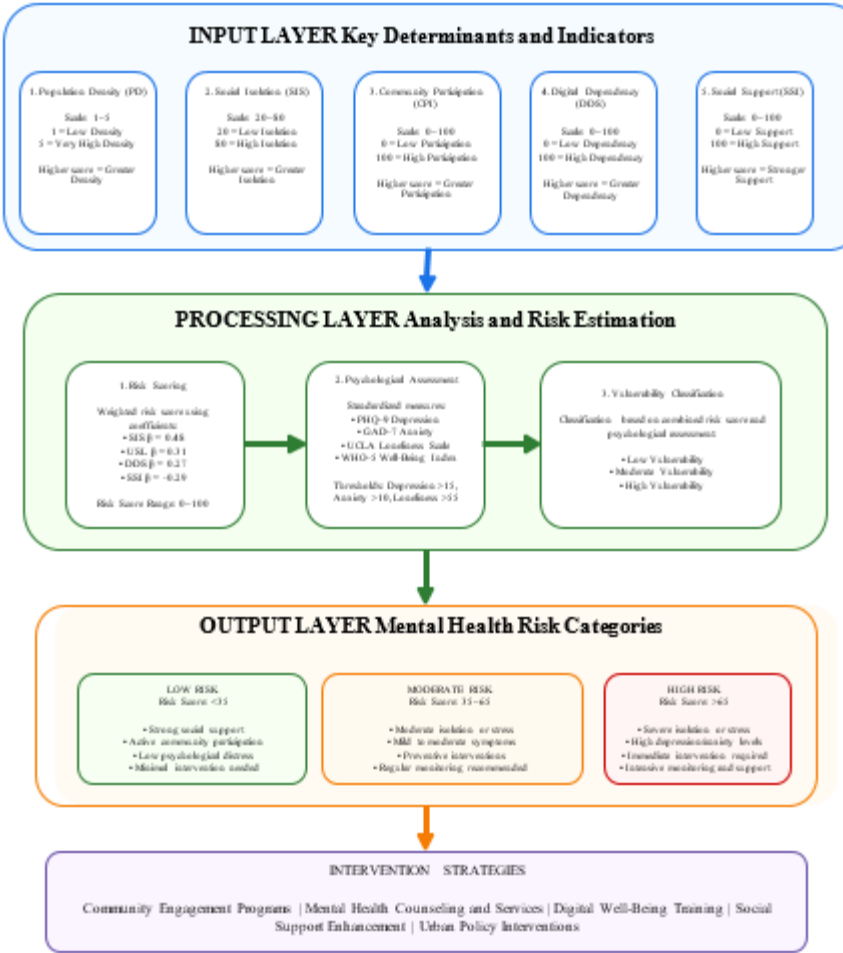


Fig. 2: Proposed Urban Mental Health Risk Assessment Framework.

digital devices, and with fewer mental symptoms. Scores under 35 are considered to be Low Risk.

- Moderate Risk: participants who tend to have moderate social isolation, moderate anxiety symptoms or depressed symptoms and less social engagement. Risk scores of 35-65 are classified as Moderate Risk.
- High Risk: People who are highly socially isolated, highly depressed and anxious, have weak support networks, and demonstrate high levels of digital addiction. The total scores of 65 and above would be regarded as High Risk, thus necessitating immediate action and observation. The overall framework is illustrated in Fig 2, which presents the flow of information from urban environmental factors through psychological assessment and vulnerability classification to final mental health risk categorization.

The proposed framework offers an evidence-based, systematic procedure of detecting the individuals at risk of poor mental health in a fast-modernizing city as seen in Fig 2. The framework will help identify vulnerable populations in an early stage, as the absence of social isolation, digital dependency, community involvement, social support, and population density indicators allow taking an individual approach to the problem and implementing an intervention that will positively affect psychological health and decrease the levels of mental health issues in cities.

Discussion

The current research results offer considerable support to the idea that urban social seclusion is closely related to poor mental health in swiftly modernizing communities. In the analysis conducted descriptively, it was apparent that 38.5% of the participants had high social isolation whereas 34.2% of them had moderate-severe symptoms of depression and 29.8% displayed levels of anxiety of a clinical significance. Such figures show that social isolation is a recent psychosocial issue that has emerged in urban populations. The average score of loneliness of 51.37 ± 10.42 also indicate that a significant percentage of urban residents feel the lack of social connectedness despite the dense population in urban set-ups. The correlation analysis showed that the process of social isolation and depression ($r = 0.71$, $p < 0.001$) has a strong positive relationship as well as social isolation and anxiety ($r = 0.65$, $p < 0.001$). The results confirm H1 and H2 and are in line with the past international literature where loneliness is cited as a key determinant of psychological distress, depression, and anxiety disorders. The negative relationship between

social isolation and wellbeing ($r = -0.68$, $p < 0.001$) observed also confirms that the reduced level of socialization has a negative impact on the quality of life and psychological functioning.

The trends in urban loneliness found in this study are the same as those in the rest of the world. The rapid urbanization, migration, alteration in family formations, and decreased participation in the community, have undermined the conventional social support systems. High levels of social isolation in this research can be compared to international sources, which show that urban residents report the loneliness level of 25-35%. The particular susceptibilities of young adults aged 18-30 years and older adults aged 65 years and above appeared, indicating that the social transition, along with the aging-related influences, are important contributors to loneliness in urban areas. The social isolation mental health burden became apparent during the analysis. The scores of depression in the High Isolation Group were more than twice than those of Low Isolation Group (15.84 versus 7.26) and higher than those of socially connected individuals (13.21 versus 5.68) did both anxiety scores. These results underscore the significant psychological consequences of a long-term lack of social connection and support the importance of early screening of vulnerable groups.

Digital technology came out as a significant contributory factor. The regression Model showed that Digital Dependency Score was a significant predictor of mental health risk ($\beta = 0.27$, $p = 0.001$). Despite the potential opportunities offered through digital communication platforms, overreliance can diminish face-to-face interactions that are meaningful and cause feelings of loneliness. The findings imply that digital interaction ought to supplement and not to substitute the traditional social interaction in urban societies.

One of the factors that were found to be a central protective factor was community resilience. There were significant negative relationships between mental health risk and Community Participation Index and Social Support Index. Those who reported a high level of community participation and social support scored better in their wellbeing scores, less psychological distress, and life satisfaction. These results suggest that the negative consequences of urban stress and social isolation can be alleviated by enhancing the neighborhood cohesion, civic participation, and social support networks. Policy wise, the findings highlight the relevance of factoring mental health into the urban planning and community health policies. Social engagement interventions, community centers, and available mental health care, as well as interventions designed specifically to address loneliness, can significantly

decrease loneliness and enhance psychological wellbeing. Development of social infrastructure and expansion of physical infrastructure should be given priority by policymakers in order to create healthier and stronger urban societies.

ADVANTAGES OF THE PROPOSED FRAMEWORK

The suggested Urban Mental Health Risk Assessment Framework has a number of benefits to researchers, medical practitioners, city planners, and policymakers. First, the framework offers a quantitative risk evaluation mechanism as it combines indicators of population density, social isolation, community involvement, digital dependency and social support into a single evaluation model. Empirical data, including a regression equation to explain 62.4% of the variation in mental health outcomes, supports the framework. One of the greatest strengths of the framework is that it can detect a lot at an early stage. The framework allows intercepting people at risk of psychological degradation by using the validated psychological assessment tools, including the UCLA Loneliness Scale, PHQ-9, GAD-7, and WHO-5 Well-Being Index. This preemptive measure helps to intervene and preventive care on time.

Vulnerability classification and risk stratification using the framework also aids in the use of evidence-based intervention plans. By focusing on High Risk individuals and implementing specific social engagement programs within the scope of the Moderate Risk populations, respectively, healthcare providers are able to better allocate resources, and community organizations are able to design special social engagement strategy. Moreover, the framework can be scaled and applicable to various urban environments, which is why it can be adopted in the municipalities of different sizes and with diverse socioeconomic characteristics. The other important benefit is that it can be used to monitor and survey mental health as well as community level. Regular evaluation of social isolation and other such indicators can help to make informed decisions and allocate resources. The framework also offers useful information in the development of the public policy as it determines critical determinants of mental health in urban settings and measures the effectiveness of the intervention on a long-term basis.

PRACTICAL APPLICATIONS

The suggested framework can be widely used in practice in various fields. In the context of smart city programs, the framework may be embedded into urban analytics

systems that will track the social wellbeing indicators and direct the focus of intervention in specific areas. These kinds of integration may help create more welcoming and psychologically enabling urban spaces. The framework can be used by the public health agencies in the creation of community-based mental health programs, population-level risk assessment and effectiveness of the intervention strategies. The mental health surveillance systems can use the framework to track the trends of loneliness, depression, anxiety and psychological distress among various demographics.

Another significant usage is community wellbeing assessments. The framework can assist the municipal government to assess the level of social cohesion in neighborhoods, recognize the socially vulnerable grouping, and design community-based programs that build on social participation and social support systems. The framework can also shape the social welfare policy development by offering numerical data on the aspects that affect the results of mental health. Some examples involve elderly support initiatives to help older adults feel less socially isolated, youth mental health, and digital dependency and loneliness, and workplace wellbeing monitoring programs to detect employees with increased psychological distress. Together, these applications show that the framework can be used to improve the management of mental health in urban settings and make life better.

LIMITATIONS

There are a number of confinements which should be admitted in understanding the results of this research. To begin with, the cross-sectional research design restricts the possibility of creating any causal relationships between social isolation and the mental health outcome. Despite the strong associations, longitudinal studies are necessary to identify cause-effect relationships. Second, the study was based on self-report responses, which can be affected by the recall bias, the social desirability bias, and the perception itself. The subjects might have under- and overreported some of the psychological experiences. Third, there can be regional differences that can affect the generalizability of the findings. Urban settings vary significantly in respect to culture, infrastructure, socioeconomic and social rules. As a result, the relationships observed can be different in geographic locations. Cultural factors, too, are a worth considering factor since loneliness, social support and mental well being perceptions may vary across cultures. Lastly, in spite of the stratified sampling, it is impossible to rule out sampling bias and some groups of demographics might be underrepresented in the study population.

FUTURE SCOPE

Longitudinal study designs should be used in future studies to examine the time-based relationships between urban social isolation and mental health outcomes. These studies would be more convincing in terms of causality and allow to study the dynamics of changes in social connectedness with time. Comparative studies across different urban settings and cultural backgrounds should also be done in the framework to determine its applicability in multi-city settings. Comparative studies would also be able to find location-specific factors of loneliness and increase the validity of the results. The other promising direction is machine learning prediction models. Combining artificial intelligence methods with social and psychological measurements are likely to enhance the accuracy of predicting risks and aid in real-time monitoring of mental health. Future research can also focus on how to implement the framework in smart city systems using Internet of Things, digital health, and urban analytics systems. Additional studies ought to measure the efficacy of digital interventions, online counseling interventions, and technological-mediated community engagement interventions. International benchmarking of loneliness and enhancing psychological wellbeing at the global level can also be achieved by establishing global urban mental health monitoring systems to help in evidence-based policy development.

CONCLUSION

Adopting a strong empirical approach, this study offers a connection between urban social isolation and poor mental health in high-modernizing societies. Of the 800 city dwellers interviewed, 38.5% were of high social isolation, and a significant percentage of participants said that they had experienced symptoms of depression and anxiety. Statistic analyses showed that social isolation and depression ($r = 0.71$) and anxiety ($r = 0.65$) had a strong positive correlation with each other and significant negative correlation with psychological wellbeing ($r = -0.68$). The multiple regression analysis revealed a significant effect of social isolation, dependence on technology, social support, and urban stress on psychological health and 62.4% variance in the mental health was explained by them. The results show that social isolation is a critical issue in the field of public health that needs the concerted effort of the healthcare providers, policymakers, urban planners, and community organizations. The Urban Mental Health Risk Assessment Framework proposed provides a systematized and scientific approach to identifying vulnerable populations, facilitating

the planning of interventions, and aiding mental health monitoring. Community involvement, building up social support systems, responsible use of digital technology, and integration of mental health into urban planning policies are crucial in developing robust and socially interconnected urban populations. With urbanization still gaining momentum worldwide, some concern on social isolation will always be in the initial list of priorities of promoting mental health of the populace and the overall quality of life.

REFERENCES

1. Adli, M., Berger, M., Brakemeier, E. L., Engel, L., Fingerhut, J., Gomez-Carrillo, A., & Stollmann, J. (2017). Neurourbanism: towards a new discipline. *The Lancet Psychiatry*, 4(3), 183-185.
2. Cacioppo, J. T., Cacioppo, S., Capitanio, J. P., & Cole, S. W. (2015). The neuroendocrinology of social isolation. *Annual review of psychology*, 66(1), 733-767.
3. Cacioppo, S., Grippo, A. J., London, S., Goossens, L., & Cacioppo, J. T. (2015). Loneliness: Clinical import and interventions. *Perspectives on psychological science*, 10(2), 238-249.
4. Campos, A. C. V., Albala, C., Lera, L., Sánchez, H., Vargas, A. M. D., & e Ferreira, E. F. (2015). Gender differences in predictors of self-rated health among older adults in Brazil and Chile. *BMC public health*, 15(1), 365.
5. Cheung, T., Fong, K. H., & Xiang, Y. T. (2024). The impact of urbanization on youth mental health in Hong Kong. *Current opinion in psychiatry*, 37(3), 172-176.
6. Chhajer, R., Chaudhry, S., & Mishra, A. (2024). Combating the mental health challenge of loneliness among urban youth: Could finding meaning in life and experiencing thriving enhance their well-being? *BMC Public Health*, 24(1), 1-15. <https://doi.org/10.1186/s12889-024-21185-2>
7. Gruebner, O., Rapp, M. A., Adli, M., Kluge, U., Galea, S., & Heinz, A. (2017). Cities and mental health. *Deutsches Ärzteblatt International*, 114(8), 121.
8. Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of behavioral medicine*, 40(2), 218-227.
9. Holt-Lunstad, J. (2021). The major health implications of social connection. *Current Directions in Psychological Science*, 30(3), 251-259.
10. Kato, T. A., Sartorius, N., Volpe, U., Shinfuku, N., & de Jesus Mari, J. (2025). Urbanization and emerging mental health problems: the role of the WPA Section on Urban Mental Health. *World Psychiatry*, 24(2), 290.

11. Klinenberg, E. (2018). *Palaces for the people: How social infrastructure can help fight inequality, polarization, and the decline of civic life*. Crown.
12. Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public health*, 152, 157-171.
13. Lim, M. H., Eres, R., & Vasan, S. (2020). Understanding loneliness in the twenty-first century: an update on correlates, risk factors, and potential solutions. *Social psychiatry and psychiatric epidemiology*, 55(7), 793-810.
14. Surkalim, D. L., Luo, M., Eres, R., Gebel, K., van Buskirk, J., Bauman, A., & Ding, D. (2022). The prevalence of loneliness across 113 countries: systematic review and meta-analysis. *bmj*, 376.
15. Torous, J., & Blease, C. (2024). Generative artificial intelligence in mental health care: potential benefits and current challenges. *World Psychiatry*, 23(1), 1.
16. Valtorta, N. K., Kanaan, M., Gilbody, S., Ronzi, S., & Hanratty, B. (2016). Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. *Heart*, 102(13), 1009-1016.
17. World Health Organization. (2024). Technical Consultation on Loneliness in Cities, Manila, Philippines, 11-12 July 2024: meeting report.