

ORIGINAL RESEARCH

Loneliness in the Elderly: A Community-Based Assessment of Prevalence and Demographic Correlates in Bekasi, Indonesia

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Article Info

Abstract

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Background: Loneliness among the elderly is a critical public health concern associated with adverse mental and physical health outcomes. In Indonesia, rapid urbanization and shifting family structures may exacerbate this issue, yet data on its prevalence at the primary healthcare level remain limited.

Objective: This study aimed to assess the prevalence of loneliness and identify key demographic correlates among community-dwelling elderly in the working area of Babelan 1 Community Health Center, Bekasi, Indonesia.

Methods: A community-based cross-sectional study was conducted from March to June 2024. Using consecutive sampling, 109 elderly participants aged ≥ 60 years were enrolled. Data were collected using the validated Indonesian version of the UCLA Loneliness Scale (Version 3) and a structured demographic questionnaire. Descriptive statistics and frequency distributions were used for data analysis.

Results: The study revealed that 74.3% of participants experienced mild loneliness, while 16.5% reported no loneliness, 8.3% had moderate loneliness, and 0.9% experienced severe loneliness. Significant demographic correlates included female gender (72.5%), age 60-69 years (78.9%), elementary education level (47.7%), unemployment status (69.7%), widowhood (51.4%), and low income (<IDR 1,500,000; 87.2%).

Conclusion: Mild loneliness is prevalent among the elderly in this community, with distinct demographic correlates. These findings emphasize the need for targeted, community-based psychosocial interventions integrated into primary healthcare services to address loneliness among vulnerable elderly populations.

Background

Global demographic transitions are resulting in rapidly aging populations, with profound implications for public health systems worldwide. By 2050, the number of individuals aged 60 years and older is projected to reach 2.1 billion, representing a fundamental shift in population structures across both developed and developing nations (World Health Organization [WHO], 2022). This demographic transformation presents unprecedented challenges for healthcare systems, social support structures, and economic sustainability (Rudnicka et al., 2020). In Indonesia, this trend is particularly pronounced, with the proportion of elderly citizens increasing from 7.6% in 2010 to 11.75% in 2022, signaling an urgent need to address the multifaceted challenges of aging populations (Central Bureau of Statistics, 2023). The acceleration of population aging in Southeast Asia, including Indonesia, is occurring at a faster pace than in many Western countries, necessitating region-specific research and interventions (Teerawichitchainan et al., 2020).

Among the most significant psychosocial challenges facing older adults is loneliness, defined as the distressing subjective experience resulting from a perceived discrepancy between desired and actual social relationships (Prohaska et al., 2020; Dahlberg et al., 2022). Distinct from objective social isolation, loneliness represents a complex emotional state with far-reaching implications for health and wellbeing in later life (Park et al., 2020). Extensive research has established strong associations between loneliness and adverse health outcomes, including depression, anxiety, cognitive decline, and increased cardiovascular morbidity and mortality (Hajek et al., 2025; Lennartsson et al., 2022; Donovan & Blazer, 2020). A meta-analysis by Lee et al. (2021) demonstrated that loneliness increases the risk of all-cause mortality by approximately 26%, an effect size comparable to well-established risk factors such as obesity and physical inactivity. Furthermore, loneliness has been linked to accelerated biological aging, including telomere shortening and dysregulation of inflammatory processes (Smith et al., 2020).

The etiology of loneliness in elderly populations is multifactorial, involving complex interactions between individual characteristics, social circumstances, and environmental factors (Fakoya et al., 2020). Key demographic correlates identified in previous research include female gender, advanced age, widowhood, low educational attainment, economic disadvantage, and limited social networks (Surkalim et al., 2022; Tapia-Munoz et al., 2023; Su et al., 2022). A systematic review by Chawla et al. (2021) identified over 30 distinct risk factors for loneliness in later life, highlighting the complexity of this phenomenon. Furthermore, cultural context significantly influences both the experience and expression of loneliness, with collectivist societies traditionally providing stronger familial buffers against social disconnection (Hasiolan, 2025; Van Tilburg et al., 2021). Cross-cultural studies have demonstrated that loneliness prevalence and correlates vary substantially across societies, emphasizing the need for context-specific research (Hansen & Slagsvold, 2020).

In the Indonesian context, rapid urbanization, economic migration, and evolving family structures are transforming traditional support systems that historically protected elderly members from social isolation (Schröder-Butterfill & Fithry, 2020). Bekasi Regency, as part of the Greater Jakarta metropolitan area, exemplifies these demographic pressures, with its elderly population exceeding 200,000 individuals (Bekasi District Population and Civil Registry Office, 2023). The region has experienced massive in-migration of working-age adults, often leaving elderly parents behind or creating multigenerational households where adult children are absent for extended periods due to work commitments (Wijaya & Mubasyiroh, 2021). Despite these significant demographic shifts, empirical research examining loneliness prevalence and its correlates at the community level remains scarce, particularly within primary healthcare catchment areas where interventions would be most feasible (Andas et al., 2025; Prina et al., 2020).

The COVID-19 pandemic has further exacerbated loneliness among older adults globally, with social distancing measures and reduced access to community activities disproportionately affecting this age group (Kotwal et al., 2021; Wu, 2020). In Indonesia, pandemic-related restrictions significantly disrupted traditional social support mechanisms,

including religious gatherings, community activities, and family visits, potentially intensifying pre-existing loneliness trends (Hasiolan, 2024; Suhardin & Puspitasari, 2022). Post-pandemic recovery efforts must therefore include targeted psychosocial interventions for vulnerable elderly populations (Landeiro et al., 2022).

The public health significance of loneliness is increasingly recognized, with several countries developing national strategies to address social isolation and loneliness among older adults (Fakoya et al., 2020; O'Sullivan et al., 2021). The World Health Organization has identified loneliness as a priority area for aging research and policy development, emphasizing the need for community-based solutions integrated into primary healthcare systems (WHO, 2021). However, in low- and middle-income countries like Indonesia, loneliness remains underrecognized as a health priority, and evidence-based interventions tailored to local contexts are lacking (Gyasi et al., 2021; Teerawichitchainan et al., 2020).

This study addresses a critical research gap by providing a community-based assessment of loneliness prevalence and demographic correlates among elderly residents in the Babelan 1 Community Health Center area. The novelty of this research lies in its application of a standardized, validated instrument (UCLA Loneliness Scale Version 3) within a representative community sample, generating localized evidence directly applicable to primary healthcare planning (Russell, 2020). Furthermore, by examining specific demographic correlates within this transitional urban region, the study offers insights into vulnerability patterns that can inform targeted interventions (Andas et al., 2023, 2024; Domènech-Abella et al., 2021).

Therefore, this community-based study aimed to determine the prevalence of loneliness levels and identify key demographic correlates among elderly residents in the working area of Babelan 1 Community Health Center, Bekasi, Indonesia. The findings are expected to establish an empirical foundation for developing contextually appropriate, community-integrated strategies to mitigate loneliness and promote psychosocial wellbeing among Indonesia's growing elderly population (Gardiner et al., 2020; Poscia et al., 2020).

Methods

Study Design and Setting

This study employed a community-based cross-sectional design. The research was conducted in the working area of Babelan 1 Community Health Center, Bekasi Regency, West Java, Indonesia, from March to June 2024. This location was selected due to its characteristic as a transitional urban-rural area experiencing rapid demographic changes.

Population and Sample

The target population was community-dwelling elderly individuals aged ≥ 60 years residing in the Babelan 1 Community Health Center catchment area. A consecutive sampling technique was employed to recruit participants who met the inclusion and exclusion criteria. Inclusion criteria: (a) aged 60 years or older; (b) resident in the study area for at least 6 months; (c) able to communicate verbally; and (d) willing to provide informed consent. Exclusion criteria: (a) diagnosed with cognitive impairment or dementia; (b) experiencing severe

communication difficulties; (c) bedridden or unable to participate in interviews; and (d) residing in institutional care facilities.

A total of 109 elderly participants were enrolled in the study, which exceeded the minimum sample size calculated based on a single population proportion formula with 95% confidence level, 5% margin of error, and anticipated prevalence of 50%.

Research Instruments

Demographic Questionnaire

A structured questionnaire was developed to collect sociodemographic characteristics including: gender (male/female), age (categorized as 60-69 years, 70-79 years, ≥ 80 years), educational level (no formal education, elementary, junior high, senior high, higher education), employment status (employed/unemployed), marital status (married, widowed, divorced, never married), living arrangement (alone, with spouse, with children, with others), and monthly income (<IDR 1,500,000; IDR 1,500,000-3,000,000; >IDR 3,000,000).

UCLA Loneliness Scale (Version 3)

Loneliness was measured using the Indonesian validated version of the UCLA Loneliness Scale (Version 3). This instrument consists of 20 items rated on a 4-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often). Total scores range from 20 to 80, with higher scores indicating greater loneliness. Based on established cut-off scores, loneliness levels were categorized as: no loneliness (score 20-34), mild loneliness (35-49), moderate loneliness (50-64), and severe loneliness (65-80). The Indonesian version has demonstrated good reliability with Cronbach's alpha of 0.89 in previous studies.

Data Collection Procedure

Data collection was conducted by trained research assistants comprising community health workers and nursing students. Prior to data collection, all enumerators underwent a one-day training session covering interview techniques, ethical considerations, and standardized administration of the UCLA Loneliness Scale.

Eligible participants were approached during routine community health center activities, integrated healthcare posts (posyandu lansia), and through home visits. After providing written informed consent, participants completed face-to-face interviews using the structured questionnaires. For participants with visual impairment or literacy difficulties, questions were read aloud by interviewers. Each interview lasted approximately 30-45 minutes.

Data Analysis

Data were analyzed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were computed to summarize participant characteristics and loneliness prevalence. Categorical variables were presented as frequencies and percentages. Continuous variables (age, loneliness scores) were checked for normality using the Kolmogorov-Smirnov test and presented as mean \pm standard deviation or median with interquartile range as appropriate. To examine the distribution of loneliness levels across demographic subgroups, cross-tabulations were performed. Given the descriptive nature of this study, inferential statistics were not employed for hypothesis testing, consistent with the study objective to describe prevalence and frequency distributions.

Ethical Considerations

This study was approved by the Health Research Ethics Committee of Bani Saleh University (Approval Number: 045/KEPK-UBS/III/2024). Permissions were also obtained from the Bekasi District Health Office and Babelan 1 Community Health Center. All participants provided written informed consent after receiving comprehensive information about study purposes, procedures, potential risks, and benefits. Confidentiality was ensured by using unique codes instead of personal identifiers. Participants who exhibited severe loneliness or psychological distress were offered referral to mental health services at the community health center.

Results

A total of 109 elderly individuals participated in this study. Table 1 presents the demographic characteristics of the respondents. The majority were female (72.5%, n=79), while males comprised 27.5% (n=30). In terms of age distribution, most participants were in the young-old category (60-69 years), accounting for 78.9% (n=86), followed by those aged 70-79 years (16.5%, n=18), and those aged 80 years and above (4.6%, n=5).

Regarding educational attainment, nearly half of the participants had completed only elementary education (47.7%, n=52), followed by no formal education (22.0%, n=24), junior high school (16.5%, n=18), senior high school (11.0%, n=12), and higher education (2.8%, n=3). Employment status revealed that the majority were unemployed (69.7%, n=76), while 30.3% (n=33) reported being employed, primarily in informal sector occupations.

Marital status data showed that most participants were widowed (51.4%, n=56), followed by married (42.2%, n=46), and divorced/never married (6.4%, n=7). Concerning living arrangements, the largest proportion lived with their children (45.0%, n=49), followed by those living with spouse only (33.0%, n=36), living alone (13.8%, n=15), and living with others (8.2%, n=9). Monthly income was predominantly in the lowest category (<IDR 1,500,000), representing 87.2% (n=95) of participants, with only 11.0% (n=12) in the middle category and 1.8% (n=2) in the highest category.

Table 1. Demographic Characteristics of Elderly Participants (N=109)

Characteristic	Category	Frequency (f)	Percentage (%)
Gender	Male	30	27.5
	Female	79	72.5
Age Group	60-69 years	86	78.9
	70-79 years	18	16.5
	≥80 years	5	4.6
Education Level	No formal education	24	22.0
	Elementary school	52	47.7
	Junior high school	18	16.5
	Senior high school	12	11.0
	Higher education	3	2.8
Employment Status	Employed	33	30.3
	Unemployed	76	69.7
Marital Status	Married	46	42.2
	Widowed	56	51.4
	Divorced/Never married	7	6.4
Living Arrangement	Alone	15	13.8
	With spouse only	36	33.0
	With children	49	45.0
	With others	9	8.2
Monthly Income	< IDR 1,500,000	95	87.2

IDR 1,500,000-3,000,000	12	11.0
> IDR 3,000,000	2	1.8

Table 2. Distribution of Loneliness Levels Among Elderly Participants (N=109)

Loneliness Level	Frequency (f)	Percentage (%)	Score Range
No loneliness (20-34)	18	16.5	22-34
Mild loneliness (35-49)	81	74.3	35-48
Moderate loneliness (50-64)	9	8.3	50-58
Severe loneliness (65-80)	1	0.9	68
Total	109	100	

The overall prevalence of loneliness among elderly participants is presented in Table 2. Based on UCLA Loneliness Scale scores, the majority of respondents (74.3%, n=81) experienced mild loneliness. A total of 16.5% (n=18) reported no loneliness, while 8.3% (n=9) experienced moderate loneliness. Severe loneliness was observed in only one participant (0.9%). The mean loneliness score for the entire sample was 41.3 ± 8.7 (range: 22-68), indicating a predominance of mild loneliness in this community population.

Table 3. Distribution of Loneliness Levels by Demographic Characteristics (N=109)

Characteristic	Category	No Loneliness f (%)	Mild Loneliness f (%)	Moderate Loneliness f (%)	Severe Loneliness f (%)	Total f (%)
Gender	Male	5 (16.7)	24 (80.0)	1 (3.3)	0 (0.0)	30
	Female	13 (16.5)	57 (72.2)	8 (10.1)	1 (1.2)	79
Age Group	60-69 years	14 (16.3)	67 (77.9)	5 (5.8)	0 (0.0)	86
	70-79 years	3 (16.7)	12 (66.7)	2 (11.1)	1 (5.5)	18
	≥80 years	1 (20.0)	2 (40.0)	2 (40.0)	0 (0.0)	5
Education	No formal	5 (20.8)	17 (70.8)	2 (8.4)	0 (0.0)	24
	Elementary	7 (13.5)	39 (75.0)	5 (9.6)	1 (1.9)	52
	Junior high	3 (16.7)	14 (77.8)	1 (5.5)	0 (0.0)	18
	Senior high	2 (16.7)	9 (75.0)	1 (8.3)	0 (0.0)	12
	Higher education	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)	3
Employment	Employed	7 (21.2)	22 (66.7)	4 (12.1)	0 (0.0)	33
	Unemployed	11 (14.5)	59 (77.6)	5 (6.6)	1 (1.3)	76
Marital Status	Married	8 (17.4)	34 (73.9)	4 (8.7)	0 (0.0)	46
	Widowed	8 (14.3)	42 (75.0)	5 (8.9)	1 (1.8)	56
	Divorced/Never	2 (28.6)	5 (71.4)	0 (0.0)	0 (0.0)	7
Living Arrangement	Alone	2 (13.3)	10 (66.7)	2 (13.3)	1 (6.7)	15
	With spouse	6 (16.7)	26 (72.2)	4 (11.1)	0 (0.0)	36
	With children	7 (14.3)	39 (79.6)	3 (6.1)	0 (0.0)	49
	With others	3 (33.3)	6 (66.7)	0 (0.0)	0 (0.0)	9
Income	< IDR 1.5M	16 (16.8)	71 (74.7)	7 (7.4)	1 (1.1)	95
	IDR 1.5-3M	1 (8.3)	9 (75.0)	2 (16.7)	0 (0.0)	12
	> IDR 3M	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	2

Table 3 presents the distribution of loneliness levels across demographic subgroups. Among female participants (n=79), the majority experienced mild loneliness (72.2%, n=57), while 16.5% (n=13) had no loneliness, 10.1% (n=8) had moderate loneliness, and 1.2% (n=1) had severe loneliness. For male participants (n=30), 80.0% (n=24) experienced mild loneliness, 16.7% (n=5) had no loneliness, and 3.3% (n=1) had moderate loneliness.

Regarding age groups, participants aged 60-69 years (n=86) showed 77.9% (n=67) mild loneliness, 16.3% (n=14) no loneliness, 5.8% (n=5) moderate loneliness, and none severe. Among those aged 70-79 years (n=18), 66.7% (n=12) had mild loneliness, 16.7% (n=3) no loneliness, 11.1% (n=2) moderate loneliness, and 5.5% (n=1) severe loneliness. For the oldest

group (≥ 80 years, $n=5$), 40.0% ($n=2$) had mild loneliness, 20.0% ($n=1$) no loneliness, and 40.0% ($n=2$) moderate loneliness. In terms of education, among participants with elementary education ($n=52$), 75.0% ($n=39$) experienced mild loneliness, 13.5% ($n=7$) no loneliness, 9.6% ($n=5$) moderate loneliness, and 1.9% ($n=1$) severe loneliness. Those with no formal education ($n=24$) showed 70.8% ($n=17$) mild loneliness, 20.8% ($n=5$) no loneliness, and 8.4% ($n=2$) moderate loneliness.

By employment status, unemployed participants ($n=76$) demonstrated 77.6% ($n=59$) mild loneliness, 14.5% ($n=11$) no loneliness, 6.6% ($n=5$) moderate loneliness, and 1.3% ($n=1$) severe loneliness. Among employed participants ($n=33$), 66.7% ($n=22$) had mild loneliness, 21.2% ($n=7$) no loneliness, and 12.1% ($n=4$) moderate loneliness. Marital status analysis revealed that among widowed participants ($n=56$), 75.0% ($n=42$) experienced mild loneliness, 14.3% ($n=8$) no loneliness, 8.9% ($n=5$) moderate loneliness, and 1.8% ($n=1$) severe loneliness. For married participants ($n=46$), 73.9% ($n=34$) had mild loneliness, 17.4% ($n=8$) no loneliness, and 8.7% ($n=4$) moderate loneliness.

Regarding living arrangements, participants living alone ($n=15$) showed 66.7% ($n=10$) mild loneliness, 13.3% ($n=2$) no loneliness, 13.3% ($n=2$) moderate loneliness, and 6.7% ($n=1$) severe loneliness. Those living with children ($n=49$) demonstrated 79.6% ($n=39$) mild loneliness, 14.3% ($n=7$) no loneliness, and 6.1% ($n=3$) moderate loneliness. For income categories, participants with income $< \text{IDR } 1,500,000$ ($n=95$) showed 74.7% ($n=71$) mild loneliness, 16.8% ($n=16$) no loneliness, 7.4% ($n=7$) moderate loneliness, and 1.1% ($n=1$) severe loneliness.

Discussion

This community-based study revealed that loneliness is highly prevalent among elderly residents in Bekasi, Indonesia, with 74.3% experiencing mild loneliness, 8.3% moderate loneliness, and 0.9% severe loneliness. This prevalence exceeds rates reported in Western countries (20-40%) but aligns with other Southeast Asian studies (50-80%), reflecting the unique sociocultural context of rapidly urbanizing Indonesia (Surkalim et al., 2022; Dahlberg et al., 2022; Teo et al., 2021). The predominance of mild rather than severe loneliness suggests that while traditional collectivist values and community bonds (gotong royong) provide important buffers against extreme isolation, they may be insufficient to fully meet older adults' needs for meaningful social connection amid rapid demographic transitions (Schröder-Butterfill & Fithry, 2020; Van Tilburg et al., 2021). The COVID-19 pandemic may have contributed to these patterns, as prolonged social restrictions disrupted traditional support mechanisms including religious gatherings and family visits, with lingering effects on social connectedness (Kotwal et al., 2021; Wu, 2020; Su et al., 2022).

Examination of demographic correlates revealed distinct vulnerability patterns. Female participants (72.5% of sample) showed higher loneliness prevalence, consistent with cross-national research by Barreto et al. (2021) and Hansen and Slagsvold (2020). This gender difference may reflect women's greater likelihood of widowhood and living alone (Surkalim et al., 2022), greater willingness to acknowledge loneliness versus male underreporting due to masculine norms (Lennartsson et al., 2022), and women's longer life expectancy exposing them to cumulative age-related losses (Donovan & Blazer, 2020). Research by Dahlberg et al. (2022) further suggests that women's larger social networks may create greater expectations for social connection, leading to larger perceived discrepancies when these expectations remain unmet. Interestingly, loneliness was highest among the young-old (60-69 years, 78.9% of sample),

contrasting with assumptions that loneliness increases linearly with age (Hajek et al., 2025). This finding supports research by Luhmann and Hawkey (2020) and Luhmann and Buecker (2023) indicating that life transitions accompanying early old age retirement, empty nest, chronic illness onset can precipitate loneliness. Retirement represents significant loss of social connections and daily structure (Segel-Karpas et al., 2020), while the empty nest transition creates social vacuum for parents deriving meaning from childrearing (Park et al., 2020). The oldest old (≥ 80 years), though small in number, showed increased moderate loneliness (40%), aligning with Dahlberg et al. (2022) regarding accumulated losses and functional limitations in advanced age.

Educational attainment emerged as a significant correlate, with most participants having elementary education (47.7%) or no formal education (22.0%). Education influences loneliness through multiple pathways including health literacy, social network diversity, and access to resources for maintaining social engagement (Tapia-Munoz et al., 2023; Domènech-Abella et al., 2021). Hakulinen et al. (2020) demonstrated that lower educational attainment is associated with increased loneliness through reduced socioeconomic resources, poorer health, and smaller social networks, while Surkalim et al. (2022) identified low education as a consistent risk factor across diverse populations. In the Indonesian context, limited educational opportunities for current elderly cohorts may also be associated with rural residence, traditional occupations, and restricted exposure to social engagement opportunities outside the immediate family (Wijaya & Mubasyiroh, 2021). Socioeconomic status showed that 87.2% of participants lived below IDR 1,500,000 monthly substantially below regional minimum wage limiting opportunities for social participation and creating psychological distress that amplifies loneliness (Gyasi et al., 2021; Andas et al., 2025). Hakulinen et al. (2020) found that income inequality amplifies loneliness through both material deprivation and psychosocial mechanisms, including perceived relative disadvantage. Teerawichitchainan et al. (2020) highlight that economic security is essential for healthy aging in Southeast Asia, as inadequate income restricts transportation to visit friends, community participation, and technology-mediated connections, while financial strain itself creates psychological distress (Smith et al., 2020).

Marital status revealed that widowed individuals constituted the largest group (51.4%), with 75% experiencing mild loneliness. Widowhood removes the primary source of emotional support and companionship, with grief processes exacerbating loneliness (Dahlberg et al., 2022; Surkalim et al., 2022; Lennartsson et al., 2022). Robards et al. (2020) demonstrated that widowhood has lasting effects persisting for years after loss, involving not only partner loss but also potential changes in social networks as couple friendships fade and previously shared activities become difficult to maintain alone. In collectivist societies like Indonesia, widowhood may carry cultural stigmas that further constrain social engagement (Schröder-Butterfill & Fithry, 2020). Living arrangements showed that most participants lived with children (45.0%) or spouse only (33.0%), with only 13.8% living alone. Notably, those living alone did not show dramatically higher loneliness compared to those living with family, supporting the conceptual distinction between social isolation and subjective loneliness (Prohaska et al., 2020; Dahlberg et al., 2022). Even elderly living with family may experience loneliness if relationships lack emotional depth, particularly when younger family members

are occupied with work (Teo et al., 2021). Domènech-Abella et al. (2021) demonstrated that conflictual family relationships can increase loneliness, while supportive relationships protect against it even when living apart. Our finding that 79.6% of those living with children experienced mild loneliness suggests generally positive relationships but room for improving interaction quality.

These findings have important implications for nursing practice and primary healthcare. The high prevalence of mild loneliness supports integrating universal screening using validated tools like the UCLA Loneliness Scale into routine geriatric assessments at community health centers, enabling early intervention before loneliness becomes entrenched (Fakoya et al., 2020; Russell, 2020; WHO, 2021). Demographic patterns can inform targeted interventions for widowed, low-income, and less-educated elderly through support groups, social activities, and volunteer visiting programs facilitated by community health nurses (Gardiner et al., 2020; Andas et al., 2024; Poscia et al., 2020). Systematic reviews by Landeiro et al. (2022) and Fakoya et al. (2020) indicate that group-based interventions with educational or social components are among the most effective approaches. The finding that many elderly live with children yet experience loneliness highlights the need for interventions enhancing family interaction quality through caregiver education about meaningful engagement beyond instrumental care (O'Sullivan et al., 2021) and intergenerational programs facilitating structured activities (Teerawichitchainan et al., 2020). Given economic constraints, interventions should be low-cost and community-based, utilizing existing resources like religious institutions, *posyandu lansia*, and neighborhood associations (Hasiolan, 2024; Suhardin & Puspitasari, 2022). Community empowerment approaches engaging older adults as volunteers rather than passive recipients may enhance meaningful engagement (Gyasi et al., 2021). Technology-based interventions warrant consideration, though digital literacy and access barriers must be addressed; in low-income populations with limited education, simple interventions like telephone befriending may be more feasible than internet-based solutions (Kotwal et al., 2021; Landeiro et al., 2022; Wu, 2020).

Comparison with previous research shows consistency with Indonesian studies; Andas et al. (2025) reported significant associations between loneliness and depression among elderly in long-term care facilities, while Hasiolan (2025) emphasized social engagement's importance for elderly wellbeing in Bekasi. The pattern of mild loneliness predominance may reflect cultural differences in loneliness expression, with collectivist societies potentially underreporting severe loneliness due to concerns about burdening family or admitting social failures (Tapia-Munoz et al., 2023; Van Tilburg et al., 2021). Alternatively, strong community bonds may genuinely protect against severe isolation even as mild loneliness remains common (Schröder-Butterfill & Fithry, 2020). Cross-national research by Barreto et al. (2021) found that country-level factors including collectivism, economic development, and age structure significantly influence loneliness prevalence. Indonesia's position as a middle-income country with strong collectivist traditions may create a unique pattern of widespread mild loneliness but relatively rare severe loneliness, suggesting that traditional social structures provide important buffers against extreme isolation while remaining insufficient to fully meet older adults' needs for meaningful connection amid rapid social change (Teerawichitchainan et al., 2020). Future research should employ longitudinal designs to establish causal pathways (Wang

& Cheng, 2020), include comprehensive health assessments addressing potential confounders (Donovan & Blazer, 2020), and conduct qualitative studies exploring cultural nuances in loneliness expression (Schröder-Butterfill & Fithry, 2020). Study limitations include cross-sectional design precluding causal inference, single-site setting limiting generalizability, and small subgroup sizes (Rothman et al., 2021; Jones et al., 2020), yet the findings provide essential evidence for developing contextually appropriate interventions addressing loneliness among Indonesia's growing elderly population.

Strengths and Limitations

This study represents one of the first community-based assessments of loneliness using a validated instrument in an Indonesian primary healthcare catchment area, with consecutive sampling and face-to-face interviews minimizing selection bias and ensuring data quality while providing detailed demographic correlates for intervention targeting. However, several limitations must be acknowledged: the cross-sectional design precludes causal inferences regarding relationships between demographic factors and loneliness (Wang & Cheng, 2020); the single-site setting limits generalizability to other Indonesian regions with different demographic characteristics (Rothman et al., 2021); reliance on self-reported data may introduce recall and social desirability bias, particularly regarding sensitive topics like loneliness (Althubaiti, 2020); small subgroup sizes (e.g., severe loneliness, oldest old) limit detailed analysis and statistical power (Jones et al., 2020); and the absence of potential confounders such as health status, functional limitations, and depression, along with a single measurement time point, fails to capture loneliness's dynamic nature and complex relationships with demographic characteristics (Donovan & Blazer, 2020; Dahlberg et al., 2022).

Recommendations for Future Research

Future research should address these limitations through multicenter longitudinal studies with probability sampling to enhance generalizability, establish causal pathways, and track loneliness dynamics over time (Rothman et al., 2021; Luhmann & Buecker, 2023). Qualitative phenomenological research is needed to explore cultural nuances in loneliness expression and coping among Indonesian elderly, informing contextually appropriate interventions (Schröder-Butterfill & Fithry, 2020). Randomized controlled trials of community-based interventions tailored to the Indonesian context, particularly targeting vulnerable subgroups including widowed, low-income, and less-educated elderly, are urgently required to translate findings into practice (Landeiro et al., 2022). Longitudinal studies examining relationships between loneliness and health outcomes (depression, cardiovascular disease, mortality) with comprehensive health assessments would strengthen the evidence base for loneliness as a public health priority in Indonesia (Hajek et al., 2025; Lee et al., 2021). Finally, implementation research investigating integration of loneliness screening and interventions into existing primary healthcare systems, identifying barriers, facilitators, and sustainable strategies, is essential for benefiting Indonesia's growing elderly population (Fakoya et al., 2020).

CONCLUSION

This community-based study in Bekasi revealed high loneliness prevalence among elderly residents (74.3% mild, 8.3% moderate, 0.9% severe), with vulnerable subgroups including

females (72.5%), young-old (78.9%), low-educated (69.7%), widowed (51.4%), and low-income individuals (87.2%). These findings necessitate integrating routine loneliness screening and targeted psychosocial interventions into primary healthcare services, with community health nurses equipped to implement culturally appropriate approaches leveraging existing community resources. Given Indonesia's rapid population aging and transforming family structures, addressing elderly loneliness must be prioritized as a public health imperative to promote healthy aging and prevent adverse health outcomes.

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