Healthcare Utilization of Widowed Working Elders in Southern Philippines: A Multivariable Analysis

Grace Meroflor Lantajo *

College of Development Management, University of Southeastern Philippines, Davao, Philippines

* Correspondence: gmlantajo@gmail.com

Abstract

Widowed older adults who remain economically active may face unique barriers to healthcare despite statutory coverage in the Philippines. Evidence on this subgroup particularly in Southern Philippines is limited. This study aims to examine determinants of healthcare utilization among widowed, working elders. An analytic cross-sectional study was conducted among community-dwelling widowed adults aged ≥60 years engaged in paid work across 24 barangays in Southern Philippines (N=520). Outcomes were any healthcare use in the past three months and visit count over the same period. Exposures followed Andersen's model (predisposing, enabling and need). Multivariable logistic regression (for any use) and negative binomial models (for visit count) were fitted with province fixed effects and robust standard errors clustered at the barangay level. Overall, 54.2% of the respondents reported any visit; utilization was higher in formal vs informal workers. In adjusted models, insurance, higher social support, greater multimorbidity per condition, and shorter travel time predicted higher odds of any use. Informal employment and longer weekly work hours predicted lower odds. For visit counts, multimorbidity, basic self-care and more complex activities limitation, and insurance were associated with higher frequency, while informal employment, weekly hours, and travel time were associated with fewer visits. Among widowed, working elders, realized healthcare use reflects a balance of need and enablers versus work/time and distance constraints. Converting coverage into care will likely require benefit navigation targeted to widowed informal workers, extended or mobile services aligned with work schedules, transport support, and leveraging social support networks.

Keywords: healthcare utilization; older adults; Philippines; widowhood

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1. Introduction

The Philippines is moving rapidly toward an ageing society. In 2020, an estimated 9.3 million Filipinos were aged 60 and over, and projections indicate the number could reach 23.7 million by 2050, making older adults the country's fastest-growing demographic group and reshaping demand for outpatient, inpatient, and emergency services [1]. This demographic shift heightens the salience of equitable access to care for heterogeneous subgroups of seniors whose contexts and constraints differ markedly [1].

Policy reforms have aimed to cushion financial barriers. The Expanded Senior Citizens Act of 2010 (RA 9994) mandated PhilHealth coverage for indigent seniors, later broadened by RA 10645 to automatic PhilHealth enrolment for all seniors, with premiums borne by the national government [2,3]. PhilHealth has reiterated these entitlements in administrative guidance, but real-world access also hinges on benefit literacy, provider availability, travel time and cost, and clinic scheduling-factors that can blunt statutory coverage [3].

Within this landscape, widowed older adults who remain economically active are policy-salient yet understudied. Widowhood in later life is linked to poorer mental and physical health and reduced quality of life, raising need for timely care and navigation support [4]. In many settings, the loss of a spouse also reduces household income and informal caregiving resources, potentially depressing utilization despite nominal insurance coverage [4].

Work status further shapes realized access. A large share of older Filipinos continues to work often in informal roles (e.g., street vending, market labor, own-account services) characterized by irregular earnings and limited schedule flexibility. National assessments suggest informality involves most workers and a substantial fraction of economic activity, exposing workers to insecurity and time poverty that can compete with clinic visits [5,6]. These non-price barriers (transport, queueing, and limited appointment windows) frequently surface across Southeast Asia and are highly relevant for older informal workers [7].

Theoretically, this study is anchored in Andersen's Behavioral Model of Health Services Use, which organizes determinants into predisposing (e.g., age, sex, education), enabling (e.g., income, insurance, travel time, social support), and need (e.g., self-rated health, multimorbidity, functional limitations) domains;

contemporary updates add feedback loops and long-term services contexts [8-10]. Andersen's enabling domain was extended to explicitly include work context (formal vs informal employment, weekly hours, occupational strain) as a constraint set likely to shape realized access among widowed working elders.

Empirically, Philippine and regional evidence shows that insurance expansion has not fully erased inequalities in coverage and use among older adults; spatial accessibility and transport frictions remain uneven especially outside the northern regions and utilization patterns vary by socioeconomic status and support structures [11-13]. Studies in Southeast Asia also document multilevel barriers (financial, geographic, organizational, and social), underscoring the need to parse who uses what care, and under which enabling conditions [7,13].

This study addresses a clear gap by focusing on widowed working elders in Southern Philippines. Using a multivariable framework grounded in Andersen's model, the researcher (1) described patterns of use (any visit; visit frequency), (2) estimated associations between predisposing, enabling (including insurance, travel time, social support, and costs), work-related factors, and need, and (3) explored heterogeneity by work type (formal vs informal). Building this evidence can inform local policy levers such as benefit navigation for widows, mobile or extended-hours clinics aligned with market schedules, and targeted transport or premium subsidies to translate statutory entitlements into realized access for a growing, vulnerable subgroup of older Filipinos.

2. Methodology

2.1 Design and Reporting

An analytic cross-sectional study was conducted among widowed, working older adults in the Southern Philippines. Reporting follows the STROBE guideline for observational studies [14].

2.2 Setting and Participants

The study was implemented in selected urban and rural barangays across three highly urbanized cities (Davao, Cagayan de Oro, Iligan) in Southern Philippines (Mindanao). Eligibility criteria were: (1) age ≥60 years; (2) widowed (legal or de facto); (3) engaged in paid work (formal or informal) in the past 30 days; (4) community-dwelling; and (5) able to consent or with a consenting proxy for non-sensitive items. Those who were institutionalized or receiving end-of-life/palliative-only care were excluded.

Multistage cluster sampling was used. Within selected households, enumerators screened for eligibility and invited all qualifying individuals. For the binary outcome "any healthcare visit in the past 3 months," logistic regression was powered to detect an adjusted odds ratio (AOR) = 1.5 for insurance coverage assuming baseline utilization of 50%, two-sided α=0.05, 80-90% power, 15 covariates, and a design effect for clustering; the resulting target sample was n = 300-600, ensuring ≥10-20 events per predictor and adequate precision for subgroup analyses by work type.

2.3 Outcomes, Exposures and Covariates

Two primary outcomes were examined over a 3-month recall: (1) any healthcare use (yes/no): at least one outpatient visit, inpatient admission, or emergency visit, and (2) visit count: total number of visits (OPD + inpatient + ER). For count outcomes with likely over-dispersion, negative binomial regression was prespecified [15].

Selection of variables followed Andersen's Behavioral Model domains (predisposing, enabling, need), with an explicit work-context extension:

Predisposing. Age (years), sex, education (≤primary vs >primary), household size, urbanicity.

Enabling. (1) Economic: monthly income (quartiles), catastrophic OOP (≥10% of monthly income on health in the past 12 months). (2) Coverage/access: PhilHealth/private insurance (member vs not; verified card or OSCA/PhilHealth listing), typical travel time (minutes) and transport cost (PHP) to the usual facility, and usual source of care (public/private). PhilHealth senior membership procedures and automatic entitlements were used to define coverage status uniformly across sites [16-18]. (3) Social support: 8-item modified MOS Social Support Survey (mMOS-SS), summed and rescaled to 0-100; higher scores indicate greater support [19-21]

Work context (extension to enabling). (1) Employment type: informal vs formal (no contract/payroll, self-employed street/market/own-account work, or family worker). (2) Workload: weekly work hours (continuous). (3) Occupational strain: short items adapted from demand/effort and schedule inflexibility used in gerontologic field surveys (pilot-validated locally).

Need. (1) Self-rated health (SRH): single-item general health (5-point), widely validated in older populations as predictive of morbidity and mortality [22-24]. (2) Multimorbidity: count of physician-diagnosed chronic conditions. (3) Functional status: Katz ADL (bathing, dressing, toileting, transferring, continence, feeding) and Lawton-Brody IADL (8 domains), scored per standard guidance [25-29].

2.4 Instrument Development and Data Collection

Items were adapted from previously used ageing and access surveys and translated into Cebuano/Filipino with back-translation. Cognitive interviews (n=12) and a field pilot (n=30) tested comprehension and timing; minor revisions addressed skip logic and response options for work type and travel time.

Trained enumerators conducted tablet-assisted interviews at households. Field supervisors performed daily logic checks and 10% spot re-interviews. The study adhered to the Declaration of Helsinki. Written informed consent was obtained from all participants.

2.5 Analysis

All analyses were conducted in Stata 18 and R (v4.x). Two-sided tests were performed with α=0.05. Continuous variables (mean/SD or median/IQR) and categorical variables (n/%) were summarized and, where applicable, compared by work type using survey-adjusted tests. Adjusted odds ratios (AORs) for any care use were estimated with cluster-robust (Huber-White) standard errors at the barangay level to account for within-cluster correlation. Counts were modelled with negative binomial regression; over-dispersion was confirmed by comparison of Poisson and NB dispersion statistics. Potential zero-inflation was evaluated by contrasting NB with zero-inflated NB using Vuong's non-nested likelihood ratio framework (results reported cautiously given small-sample properties).

Covariates were selected a priori using a directed acyclic graph (DAG) consistent with Andersen's model (predisposing, enabling and need). Age, sex, urbanicity, and province fixed effects were forced into all models; additional covariates were included based on theoretical relevance and DAG-informed minimal adjustment sets.

Model specification was assessed with link tests and goodness-of-fit statistics; Pearson/Schoenfeld-type residual patterns (as appropriate) were examined; and variance inflation factors (VIFs) were evaluated, with thresholds interpreted contextually rather than by rigid cutoffs. For variables with >5% missingness, multiple imputation by chained equations (MICE) (20 imputations) was applied, including all model variables and outcomes in the imputation model; estimates were pooled using Rubin's rules, and complete-case analyses were presented as sensitivity checks.

For sensitivity and subgroup analyses, the following were undertaken: (a) replacement of income quartiles with an asset index; (b) exclusion of extreme transport cost outliers; (c) sex-stratified models; (d) formal vs informal employment strata; and (e) an alternative 6-month recall window where feasible. Standard errors were made cluster-robust at the barangay level; where required by the sampling plan, finite-population correction and post-stratification weights were applied in descriptive estimates, and weighted models were re-fit as a check.

3. Results

Across 24 barangays, 1,004 individuals were screened; 530 met eligibility (≥60 years, widowed, working in the past 30 days). After excluding 10 for missing outcomes, the analytic sample was N=520. As shown in Table 1, median age was 66 years; 62.5% were women; 57.5% resided in urban areas. Informal work comprised 65.4%. Mean weekly work hours was 42.3, higher in informal work than formal. Mean occupational strain was 5.0: informal was higher than formal at 3.2.

Table 2 indicates stronger financial protection among formal workers than informal workers, reflected in higher PhilHealth coverage and greater access to private insurance. Informal workers faced greater access frictions, with longer typical travel times and higher transport costs to their usual facility, and they were more likely to incur catastrophic out-of-pocket spending. Social support scores were higher among formal workers, suggesting richer network resources. On need indicators, informal workers reported poorer self-rated health, slightly greater multimorbidity, and more functional limitations than their formal counterparts.

Table 3 shows higher utilization among formal workers than informal workers over the three-month window, with formal workers more likely to have had any visit and to report a greater average number of visits. Despite similar medians, dispersion favored more frequent use in the formal group. Patterns of site choice also diverged: informal workers relied predominantly on public facilities, whereas formal workers were more evenly distributed across public, private, and mixed sources of care.

Table 4 indicates that, after adjustment for the prespecified covariates and clustering, employment context and access enablers were the principal drivers of any healthcare use. Informal employment and longer weekly hours were each associated with lower odds of having any visit, whereas higher income, insurance coverage, shorter travel time, greater social support, and higher multimorbidity were associated with higher odds. Functional limitation, sex, age, and urban residence did not show independent associations in the adjusted model.

Table 5 shows that visit frequency was shaped by both need and enabling constraints. Higher multimorbidity and the presence of functional limitations were associated with more visits, and coverage through insurance also corresponded to greater utilization intensity. Social support contributed modestly to higher visit counts. In contrast, informal employment, longer weekly work hours, and longer travel times were each linked to fewer visits, indicating meaningful time and distance penalties. Income was positively related to visit frequency, while sex, age, and urban residence were not independently associated after adjustment.

Table 6 indicates that the association between work-related time costs and utilization was stronger among informal workers than formal workers: additional weekly hours were linked to lower odds of any use and fewer visits only in the informal stratum, consistent with greater schedule inflexibility. Insurance showed positive associations with both likelihood and frequency of care in both strata, suggesting comparable benefits across employment types. Travel time was more consequential for informal workers reducing both the probability and cadence of use while it was negligible or modest among formal workers. Social support contributed small but consistent gains in any use and visit frequency in both strata, with slightly larger effects for informal workers. Multimorbidity was positively associated with both outcomes regardless of work type, indicating that higher clinical need translated into more care across strata.

4. Discussion

In a sample of widowed, working older adults in Southern Philippines, it was found that insurance coverage, greater social support, shorter travel time, and higher clinical need (multimorbidity; ADL/IADL limitations) were associated with higher odds and rates of healthcare use, while informal employment and longer weekly hours signals of time poverty and precarious work were associated with lower utilization, independent of need and socioeconomic status. These patterns are theoretically consonant with Andersen's Behavioral Model, where enabling resources and need drive realized access, and they extend the model by foregrounding work context as a salient enabling constraint among older workers [30,31].

First, the positive association between insurance and use is consistent with national trends following the expansion of PhilHealth eligibility for seniors (via RA 10645), which substantially increased coverage among older Filipinos and helped narrow wealth-related inequalities in utilization [32,33]. The results suggest that for widowed elders who remain in the labor force especially those in informal work, insurance still matters on the margin, even after accounting for income and need.

Second, geographic frictions measured here as longer travel times were inversely associated with both any use and visit frequency. This echoes Southeast Asian evidence that transportation, distance, and clinic operating hours are recurrent barriers for older adults, and aligns with recent Philippine spatial analyses documenting poorer outpatient accessibility in many central and southern municipalities [34,35]. Given the study's Southern Philippines setting, the distance/time penalty observed is epidemiologically plausible.

Table 1. Sociodemographic and work characteristics of widowed working elders (N=520).

Characteristic	Overall	Formal work (n=180)	Informal work (n=340)
Age, years - median (IQR)	66 (63-71)	65 (62-69)	67 (63-72)
Female - n (%)	325 (62.5)	104 (57.8)	221 (65.0)
Education > primary - n (%)	226 (43.5)	104 (57.8)	122 (35.9)
Household size - mean (SD)	3.7 (1.8)	3.5 (1.7)	3.8 (1.8)
Urban residence - n (%)	299 (57.5)	119 (66.1)	180 (52.9)
Employment type - n (%)			
Formal	180 (34.6)	-	-
Informal	340 (65.4)	-	-
Weekly work hours - mean (SD)	42.3 (12.8)	36.4 (10.9)	45.8 (12.9)
Occupational strain (0-12) - mean (SD)	5.0 (2.7)	3.2 (2.1)	5.9 (2.5)

Note: Formal = contract/payroll; Informal = own account/street/market/family worker without contract.

Table 2: Enabling and need factors.

Factor	Overall	Formal (n=180)	Informal (n=340)
Enabling			
PhilHealth member (registered) - n (%)	427 (82.1)	162 (90.0)	265 (77.9)
Any private insurance - n (%)	45 (8.7)	25 (13.9)	20 (5.9)
Travel time, minutes - median (IQR)	30 (20-45)	22 (15-35)	35 (25-50)
Transport cost, PHP - median (IQR)	50 (30-80)	35 (20-60)	60 (40-90)
Catastrophic OOP - n (%)	100 (19.2)	29 (16.1)	71 (20.9)
Social support (0-100) - mean (SD)	64.8 (17.6)	69.5 (16.1)	62.1 (17.9)
Need			
Fair/poor self-rated health - n (%)	244 (46.9)	74 (41.1)	170 (50.0)
Multimorbidity (≥2) - n (%)	196 (37.7)	63 (35.0)	133 (39.1)
≥1 ADL/IADL limitation - n (%)	145 (27.9)	43 (23.9)	102 (30.0)

Table 3: Healthcare utilization outcomes (three-month recall).

Outcome	Overall (N=520)	Formal (n=180)	Informal (n=340)
Any visit - % (95% CI)	54.2 (49.9-58.4)	62.2 (54.9-69.0)	50.0 (44.6-55.4)
Visit count - mean (SD)	1.24 (1.31)	1.42 (1.36)	1.14 (1.27)
Visit count - median (IQR)	1 (0-2)	1 (0-2)	1 (0-2)
Usual source: Public only - %†	61.0	53.6	65.9
Usual source: Private only - %†	23.0	29.5	18.8
Usual source: Mixed - %†	15.9	17.0	15.3

†Among participants with any visit in past 3 months (overall n=282; formal n=112; informal n=170).

Table 4: Adjusted determinants of any healthcare use (logistic regression; N=520).

Predictor (reference)	AOR	95% CI	p-value
Employment: Informal (vs formal)	0.68	0.49-0.94	0.019
Weekly work hours (per +10 h)	0.87	0.79-0.97	0.009
Income (per higher quartile)	1.18	1.06-1.31	0.002
Insurance: Any (vs none)	1.56	1.14-2.14	0.005
Travel time (per +10 min)	0.92	0.86-0.99	0.024
Social support (per +5 pts)	1.06	1.02-1.10	0.003
Multimorbidity (per condition)	1.21	1.09-1.34	<0.001
≥1 ADL/IADL limitation (yes vs no)	1.08	0.81-1.44	0.603
Female (vs male)	1.09	0.82-1.44	0.557
Age (per +5 years)	1.03	0.93-1.14	0.557
Urban (vs rural)	1.12	0.85-1.48	0.420

Note: Cluster-robust SEs at barangay; province fixed effects included; covariates per prespecified DAG.

Third, informal employment more strongly suppressed utilization especially among those logging longer weekly hours suggesting that schedule inflexibility and daily income risk reduce care-seeking. This is consistent with broader ILO characterizations of informality (precarious contracts, weaker protections) and with the subgroup models showing steeper “hours” effects among informal workers [36].

Fourth, social support remained a positive correlate after adjustment, in line with studies showing that widowhood’s adverse health effects are partly buffered by network resources, while the loss of a spouse can diminish both navigation support and household consumption [37-39]. Together, these findings reinforce a dual mechanism: widowed elders often need more care, and their enabling resources such as insurance literacy, transport, time flexibility, and social ties determine whether that need translates into realized access.

Finally, the results fit contemporary updates to Andersen’s model that incorporate long-term services and supports and acknowledge multilevel determinants (individual, family, system) [31,34]. The salience of work context in the data argues for explicitly positioning

Table 5: Adjusted determinants of visit count (negative binomial; N = 520).

Predictor (reference)	IRR	95% CI	p-value
Employment: Informal (vs formal)	0.83	0.72-0.96	0.012
Weekly work hours (per +10 h)	0.92	0.88-0.97	0.001
Income (per higher quartile)	1.09	1.03-1.15	0.003
Insurance: Any (vs none)	1.19	1.06-1.34	0.003
Travel time (per +10 min)	0.95	0.91-0.99	0.017
Social support (per +5 pts)	1.03	1.01-1.06	0.014
Multimorbidity (per condition)	1.27	1.18-1.36	<0.001
≥1 ADL/IADL limitation (yes vs no)	1.14	1.01-1.30	0.034
Female (vs male)	1.05	0.94-1.18	0.380
Age (per +5 years)	1.02	0.97-1.07	0.420
Urban (vs rural)	1.04	0.94-1.15	0.420

Note: Cluster-robust SEs; province fixed effects included.

Table 6: Key predictors by work type (fully adjusted, stratified).

Predictor	Any use (AOR) – Formal	Any use (AOR) - Informal	Visit count (IRR) - Formal	Visit count (IRR) - Informal
Weekly work hours (per +10 h)	0.94 (0.80-1.12)	0.82 (0.72-0.94)	0.96 (0.91-1.02)	0.89 (0.84-0.95)
Insurance: Any (vs none)	1.62 (1.02-2.58)	1.51 (1.04-2.18)	1.21 (1.03-1.42)	1.18 (1.02-1.38)
Travel time (per +10 min)	0.96 (0.87-1.06)	0.89 (0.82-0.98)	0.98 (0.94-1.03)	0.93 (0.88-0.98)
Social support (per +5 pts)	1.05 (1.00-1.11)	1.07 (1.02-1.12)	1.02 (1.00-1.05)	1.04 (1.01-1.07)
Multimorbidity (per condition)	1.26 (1.08-1.47)	1.19 (1.06-1.33)	1.31 (1.18-1.45)	1.25 (1.14-1.37)

employment type and time costs within the "enabling" domain for older workers in low- and middle-income settings [31,34,40].

Three near-term levers emerge. Local implementers can strengthen benefit navigation (e.g., barangay-based PhilHealth helpdesks, widow peer navigators) to convert automatic senior coverage into utilization, particularly where documentation or awareness is uneven [32,33,40]. LGUs and facility managers could trial extended clinic hours aligned to market/vendor schedules, deploy mobile clinics to cut travel time, and offer transport vouchers in high-friction barangays-approaches consistent with evidence on access barriers across Southeast Asia and with spatial accessibility disparities within the Philippines [34,35]. Partnerships with senior citizen organizations and widow networks can provide appointment accompaniment and benefit literacy, given that social capital mitigates widowhood's health impacts and is associated with better health-seeking [37,38].

This study has several limitations. These include the cross-sectional design (no causal inference), self-report measures with three-month recall (potential misclassification), and possible residual confounding (e.g., unmeasured care quality perceptions). Spatial measures were proxied by travel time rather than facility density; however, the findings mirror national spatial analyses [35].

Two directions are high priority: (a) quasi-experimental evaluations of outreach or extended-hours piloted in informal-work barangays; and (b) mixed-methods work to unpack how widowed workers balance time-income tradeoffs vis-à-vis care quality perceptions. Linking survey data to facility accessibility indices (e.g., E2SFCA-based measures) could sharpen estimates of geographic friction in Southern Philippines.

5. Conclusions

This study shows that among widowed, working older adults in Southern Philippines, realized healthcare use reflects a tight balance between need and enablers versus work- and access-related constraints. Insurance coverage, stronger social support, and shorter travel time were consistently associated with higher odds and rates of use, while informal employment and longer weekly work hours which are markers of time poverty were associated with lower utilization, independent of income and clinical need. As expected, greater need (multimorbidity and functional limitations) translated into more visits, but not enough to fully offset distance and time penalties faced by informal workers. Together, the findings argue that statutory coverage alone is insufficient; how widowed elders work and how far they live from care meaningfully shape whether they can use services when needed.

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Conflict of Interest Statement

The author declares no conflict of interest.

Author Contributions

The author confirms sole responsibility for the following: study conception and design, analysis and interpretation of results, and manuscript preparation. The author has approved the final version of this manuscript.

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