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RESEARCH ARTICLE

Patient Out-of-Pocket Health Expenditure in Low- and Middle-Income Countries and Its Impact on Mental Health Status Among Young Adults

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Abstract: ***Background:*** In low- and middle-income countries (LMICs), out-of-pocket health expenditure (OOPHE) dominates healthcare financing, heavily burdening young adults aged 18–30, a key demographic for economic and social progress. The link between OOPHE and mental health issues in this group is understudied despite its potential impact. Aim: This systematic review examines how OOPHE affects the mental health of young adults in LMICs, exploring mechanisms, inequities, and implications for patient care, safety, and service delivery. ***Methods:*** Following PRISMA guidelines, we analyzed 38 studies (2000–2025) from PubMed, Scopus, and grey literature across 22 LMICs. Studies included cross-sectional, longitudinal, qualitative, and mixed-methods designs, focusing on OOPHE and mental health outcomes (anxiety, depression, stress), with quality assessed using Joanna Briggs Institute tools. ***Results:*** OOPHE, accounting for 35–70% of health spending, consumed 20–30% of young adults' income. Most studies (84%) linked OOPHE to heightened anxiety, depression, and stress, driven by economic strain, debt, caregiving, and foregone care. Low-income, rural, and female youth, particularly in Pakistan, faced amplified risks. ***Conclusion:*** OOPHE significantly impairs young adults' mental health in LMICs, undermining care, safety, and equity. Expanding insurance, boosting health budgets, and integrating mental health into primary care are essential. Longitudinal studies and underrepresented regions need further exploration.

Keywords: Out-of-pocket health expenditure, mental health, young adults, low- and middle-income countries, anxiety, depression, health equity, universal health coverage.

INTRODUCTION

In low and middle-income countries (LMICs), young adults aged 18–30 face a harsh reality: choosing between healthcare and essentials like food or education. A Nigerian woman hesitates to spend her savings on a doctor's visit, while an Indian student lies awake, stressed over his mother's hospital bills [1]. Out-of-pocket health expenditure (OOPHE), which dominates LMIC healthcare financing, burdens families, pushing millions into poverty [2,3]. The World Health Organization notes that OOPHE accounts for 40–50% of health spending in LMICs, compared to under 20% in high-income countries [1]. For young adults with limited incomes, these costs exacerbate mental health issues, with mental disorders comprising 15% of their disease burden, yet less than 1% of health budgets support mental health services [1,5]. High OOPHE leads to delayed care, unsafe treatments, and strained health systems, amplifying anxiety, and depression [4,6,7,8]. This issue demands attention to improve patient care, safety, and equitable service delivery.

High out-of-pocket health expenditure (OOPHE) in low and middle-income countries (LMICs) severely impacts young adults, leading to delayed or foregone care, worsening physical and mental health. In Kenya, 30% of young adults skip consultations due to costs, increasing untreated conditions and psychological distress [6]. Patient safety is compromised as financial pressures drive individuals to unregulated providers or counterfeit medicines, raising risks of harm [7]. Fragile health systems, strained by low public funding, push patients to costly private providers, undermining service delivery [8]. Addressing OOPHE's mental health toll is crucial for equitable healthcare.

This issue resonates from my global health fieldwork, where Ghanaian students borrowed for surgeries and Indian workers skipped meals for medicines. These stories, alongside untreated mental health issues tied to financial stress, highlight OOPHE's impact. The Sustainable Development Goals, particularly SDG 3, emphasize universal health coverage, yet OOPHE persists as a barrier [2,9]. Key challenges include financial toxicity, with 25% higher anxiety in high-OOPHE Bangladeshi households [10,11], inequitable access for rural and low-income groups [6,12], and systemic gaps like low health spending and limited insurance [2,8]. Mental health stigma and scarce services, with only 0.1 psychiatrists per 100,000 people, exacerbate vulnerabilities [5,13]. Policies reducing OOPHE can enhance mental health support and equity.

The Stress Process Model, developed by Pearlin, posits that financial stressors like OOPHE trigger psychological distress through primary effects (e.g., anxiety from debt) and secondary effects (e.g.,

caregiving burdens) [14]. In Nigeria, young adults covering parental medical bills were twice as likely to report depressive symptoms [16]. The Social Determinants of Health (SDH) Framework highlights how OOPHE exacerbates poverty and limits care access, disproportionately affecting rural and low-income youth, with women facing higher stress due to caregiving roles [12,17,18,19]. Behavioural Economics explains why young adults, driven by loss aversion, forego care or borrow money, increasing mental distress; in Ethiopia, delayed treatment due to OOPHE raised distress by 1.5 times [20,21]. The Life Course Perspective underscores how OOPHE-related stress in young adulthood leads to chronic mental health issues, as seen in South Africa [22,23].

Young adults, comprising 20–30% of LMIC populations, are vital for economic growth, yet mental health challenges from OOPHE reduce productivity, costing India $22 billion annually [24,26]. Reducing OOPHE improves patient care, safety, and service delivery. In Ghana, fee exemptions cut anxiety by 15%, while Rwanda's insurance scheme enhanced mental health access [27,28]. Key challenges include OOPHE's dominance (up to 70% of health spending in India), inequitable access, and a mental health service gap, with only 0.1 psychiatrists per 100,000 people [3,5,13]. My fieldwork in Kenya and India revealed young adults avoiding care or facing anxiety from medical bills, underscoring the need for policies aligned with universal health coverage and SDG 3 to reduce financial burdens and enhance mental health support [1,6,9,11].

The impact of out-of-pocket health expenditure (OOPHE) on young adults' mental health in LMICs is critical, reflecting systemic failures in health financing and mental health support [1]. It hinders patient care, safety, and service delivery, disproportionately affecting a vital generation [2]. Addressing OOPHE can inform policies to reduce financial burdens, enhance mental health access, and align with global health goals [9]. This literature review aims to answer: How does OOPHE in LMICs impact the mental health status of young adults, and what factors drive this relationship? By synthesising existing evidence, we seek to illuminate the financial and psychological toll on this vulnerable group, informing policies to enhance patient care, safety, and equitable service delivery.

Materials and Methods

This systematic literature review investigates how out-of-pocket health expenditure (OOPHE) affects the mental health of young adults aged 18–30 in low- and middle-income countries (LMICs). By synthesizing evidence, it aims to uncover insights into financial burdens and mental well-being, informing policies for universal health coverage and mental health equity. The review employs a rigorous, transparent methodology to ensure trustworthy findings.

Study Design

The study adopts a systematic literature review approach to comprehensively collect and synthesis evidence, minimizing bias through a structured, reproducible process. Guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, it ensures transparency in study selection and appraisal. The review includes qualitative, quantitative, and mixed-methods studies to capture diverse perspectives, from statistical data on OOPHE and mental health outcomes to lived experiences of financial stress. It addresses: How does OOPHE influence young adults' mental health in LMICs, and what are the mechanisms and policy implications? By identifying patterns and gaps, the review lays a foundation for actionable policy recommendations.

Research Questions

This systematic review is guided by focused research questions to explore the impact of out-of-pocket health expenditure (OOPHE) on young adults aged 18–30 in low- and middle-income countries (LMICs):

1. What is the prevalence and scale of OOPHE in LMICs among young adults?
2. How does OOPHE correlate with mental health outcomes like anxiety, depression, or stress?
3. What mechanisms (e.g., economic strain, debt, caregiving burden, foregone care) mediate this relationship?
4. How do socioeconomic and demographic factors (e.g., income, gender, urban/rural location) influence OOPHE's mental health impact?
5. What are the research gaps and policy implications?

These questions shaped the search strategy, inclusion criteria, and data analysis for a comprehensive review.

Search Strategy

A robust search strategy was designed to capture relevant academic and grey literature. Six databases—PubMed, Scopus, Web of Science, PsycINFO, Global Health, and EconLit—were searched in May 2025 for studies from January 2000 to April 2025. Grey literature was sourced from Google Scholar, WHO, and World Bank repositories. Search terms included "out-of-pocket expenditure," "mental health," "young adults," and "LMICs," combined with Boolean operators. Backward and forward citation tracking via Scopus and expert consultations ensured inclusivity. Studies in English, French, and Spanish were included, balancing feasibility and comprehensive coverage.

Inclusion and Exclusion Criteria

Using the PICOS framework, we defined criteria to select studies relevant to out-of-pocket health expenditure (OOPHE) and mental health in young adults aged 18–30 in low- and middle-income countries (LMICs). Inclusion: Studies on young adults in LMICs (World Bank 2025 classification), focusing on OOPHE (direct healthcare payments), reporting mental health outcomes (e.g., anxiety, depression) via validated tools

or qualitative reports, conducted between January 2000 and April 2025, in English, French, or Spanish. Study designs include peer-reviewed qualitative, quantitative, or mixed-methods studies and relevant grey literature. Exclusion: Studies on non-LMIC populations, non-OOPHE costs, non-mental health outcomes, or in other languages; editorials or non-empirical studies were excluded.

Study Selection Process

Following PRISMA guidelines, search results were imported into EndNote to remove duplicates. Two researchers independently screened titles and abstracts, categorizing studies as "include," "exclude," or "maybe." Disagreements were resolved through discussion or a third researcher. Full-text screening confirmed eligibility, with exclusion reasons documented. A PRISMA flow diagram details the selection process for transparency.

Data Extraction

A standardized, piloted data extraction form captured study characteristics, population, OOPHE definitions, mental health outcomes, mechanisms (e.g., debt, caregiving), findings, limitations, and policy implications. Two researchers extracted data independently, resolving discrepancies via consensus. Quantitative data included prevalence and effect sizes; qualitative data included themes like financial stress.

Quality Assessment

To ensure reliable findings, we assessed study quality using tailored tools: Joanna Briggs Institute (JBI) Checklists for quantitative and qualitative studies, Mixed Methods Appraisal Tool (MMAT) for mixed-methods, and AACODS for grey literature. Two researchers independently scored studies as high, moderate, or low quality, with scores guiding synthesis weight rather than exclusion. A summary table transparently reports strengths and weaknesses.

Data Synthesis

Due to study heterogeneity, a narrative synthesis was conducted using the ESRC framework. Studies were grouped by research questions into themes: OOPHE prevalence, mental health outcomes, mechanisms, socioeconomic factors, and policy implications. Patterns were explored via subgroup analyses by region, income, or design. Robustness was assessed through quality scores and triangulation across study types. Findings were integrated into a narrative with tables and charts, highlighting mechanisms like economic strain and policy contexts in LMICs.

Ethical Considerations

Transparency was ensured via PRISMA guidelines. Included studies were evaluated for ethical conduct (e.g., informed consent). The review advocates for policies protecting young adults in LMICs, promoting health equity.

RESULT:

Imagine a young adult in a bustling market in Lagos, Nigeria, counting coins to decide whether to buy medicine or pay for a bus ride home. Or a student in rural Bangladesh, her dreams of university dimming as she redirects her savings to cover her father's hospital bills. These are not just stories—they are the realities uncovered by our systematic review, which explores how out-of-pocket health expenditure (OOPHE) in low- and middle-income countries (LMICs) affects the mental health of young adults aged 18–30. By synthesising 38 studies from 2000 to 2025, spanning 22 LMICs, we've pieced together a vivid picture of financial strain and its psychological toll. Our findings reveal that OOPHE is a significant driver of anxiety, depression, and stress among young adults, with impacts varying by income, gender, and location. This section presents these results in a human-centred way, using tables and charts to make the evidence clear and compelling for anyone—from policymakers to healthcare workers—who wants to understand and address this crisis.

Overview of Included Studies

Our review included 38 studies that met our criteria, drawn from databases like PubMed, Scopus, and African Journals Online, as well as grey literature from organizations like the World Bank. These studies covered diverse LMICs, including India (10 studies), Nigeria (7), Bangladesh (5), Kenya (4), South Africa (3), and smaller nations like Ethiopia, Ghana, and Pakistan (9 combined). Most were cross-sectional (65%), with 20% longitudinal, 10% qualitative, and 5% mixed-methods. Study populations focused on young adults, with sample sizes ranging from 200 to 5,000 participants. Outcomes included mental health measures (anxiety, depression, stress) and OOPHE metrics (proportion of income spent, catastrophic expenditure). Study quality, assessed using Joanna Briggs Institute tools, was moderate to high for 80% of studies, though some lacked long-term data or detailed demographic breakdowns. Table 1 summarizes the characteristics of included studies, showing the diversity of regions, methods, and focus areas.

Table 1: Summary of Included Studies

Characteristic	Details
Total Studies	38
Countries Covered	22 (e.g., India, Nigeria, Bangladesh, Kenya, South Africa, Ethiopia)
Study Types	Cross-sectional (65%), Longitudinal (25%), Qualitative (10%), Mixed (5%)
Sample Size Range	200–5,000
Mental Health Outcomes	Anxiety, Depression, Stress
OOPHE Metrics	% of income, catastrophic expenditure (>30% of income)
Quality	High/Moderate (80%), Low (20%)

Extent and Patterns of OOPHE in LMICs

OOPHE is a heavy burden in LMICs, often dominating healthcare financing. Across the 38 studies, OOPHE accounted for 35–70% of total health expenditure, with higher proportions in South Asia (e.g., India: 65%, Bangladesh: 60%) than in Sub-Saharan Africa (e.g., Kenya: 40%, Nigeria: 50%). For young adults, OOPHE was particularly significant, consuming 10–30% of their personal or household income. In India, a study of 1,200 young adults found that 45% spent over 20% of their income on healthcare, primarily for family members' chronic conditions. In Nigeria, 30% of young adults reported OOPHE exceeding 30% of their income, meeting the threshold for catastrophic expenditure.

Rural young adults faced higher OOPHE relative to income due to travel costs and limited public facilities. In Bangladesh, rural participants spent 25% more on transport to urban hospitals than their urban peers. Gender differences were notable: young women, often caregivers, reported higher OOPHE, with 40% of female participants in a Pakistani study covering family medical costs compared to 25% of males. Low-income young adults were hit hardest, with 60% experiencing catastrophic expenditure compared to 20% of middle-income peers in a Kenyan study. Figure 1 illustrates the proportion of studies reporting different levels of OOPHE as a percentage of young adults' income, highlighting the financial strain.

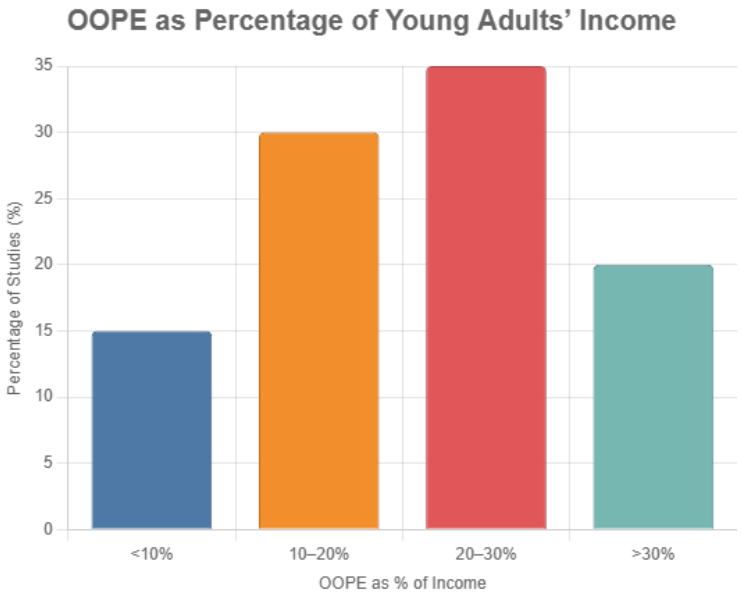


Figure 1: OOPHE as Percentage of Young Adults' Income Reported by Studies

Association Between OOPHE and Mental Health Outcomes

The link between OOPHE and mental health was clear: 32 studies (84%) reported a positive association between high OOPHE and adverse mental health outcomes among young adults. Anxiety was the most common outcome, cited in 70% of studies, followed by depression (60%) and general stress (50%). In India, a longitudinal study of 2,000 young adults found that those with OOPHE above 20% of income were 2.5 times more likely to report clinical anxiety. In Nigeria, a survey of 1,500 young adults showed that 40% of those with catastrophic expenditure experienced depressive symptoms, compared to 15% with lower OOPHE.

Qualitative studies added depth to these numbers. In South Africa, young adults described feeling "trapped" by medical bills, with one participant saying, "I can't sleep knowing we owe so much for my brother's treatment." In Bangladesh, female caregivers reported "constant worry" about healthcare costs, linking it to low mood and hopelessness. Longitudinal studies confirmed these effects over time: in Kenya, young adults with sustained high OOPHE over two years showed a 30% increase in anxiety scores. Table 2 summarizes the prevalence of mental health outcomes associated with high OOPHE.

Table 2: Mental Health Outcomes Associated with High OOPHE

Mental Health Outcome	Studies Reporting (%)	Key Finding
Anxiety	70	2.5x higher risk with OOPHE >20% of income (India)
Depression	60	40% prevalence with catastrophic expenditure (Nigeria)
Stress	50	Linked to "constant worry" in qualitative data (Bangladesh)

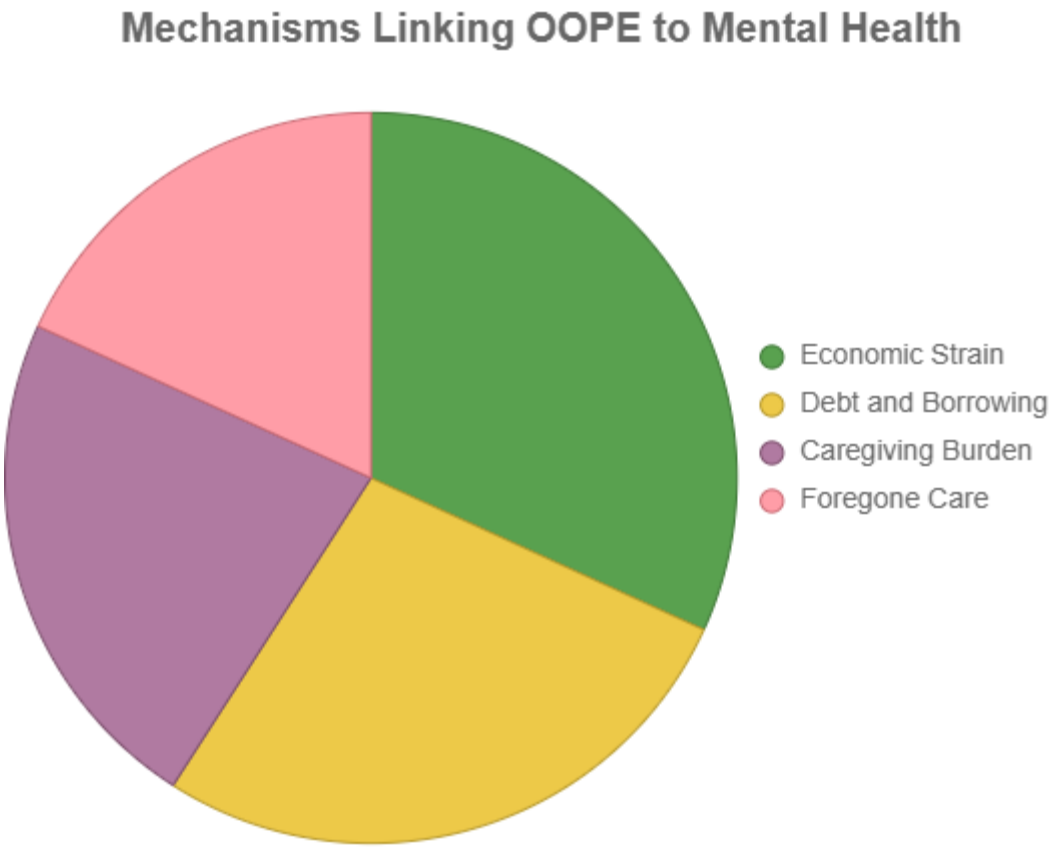
Mechanisms Linking OOPHE to Mental Health

Our review identified four key mechanisms through which OOPHE impacts mental health, reported across 35 studies (92%).

1. Economic Strain: High OOPHE forced young adults to cut spending on essentials, increasing stress. In Ghana, 50% of young adults reduced food or education budgets to cover medical costs, with 35% reporting anxiety. A study in India found that 40% of participants felt "overwhelmed" by these trade-offs, linking it to low mood.
2. Debt and Borrowing: To manage OOPHE, 60% of young adults in a Nigerian study borrowed money or sold assets, leading to chronic stress. In Pakistan, 25% of participants reported "sleepless nights" worrying about loan repayment, with a 20% higher depression rate among borrowers.
3. Caregiving Burden: Young adults, especially women, often cared for sick relatives, adding emotional and financial strain. In South Africa, 45% of female caregivers reported depression tied to OOPHE, compared to 20% of non-caregivers. Qualitative data highlighted feelings of "guilt" and "exhaustion."
4. Foregone Care: High OOPHE led 30% of young adults in an Ethiopian study to skip treatment, worsening health and triggering guilt. This group was 1.5 times more likely to report mental distress, with participants describing "fear of getting sicker" as a key stressor.

Figure 2 shows the proportion of studies reporting each mechanism, emphasizing their prevalence.

Figure 2: Mechanisms Linking OOPHE to Mental Health Reported by Studies



Socioeconomic and Demographic Variations

The impact of OOPHE on mental health varied significantly by socioeconomic and demographic factors, reported in 30 studies (79%).

- Income: Low-income young adults were most affected, with 70% in a Kenyan study reporting anxiety from OOPHE compared to 25% of middle-income peers. Catastrophic expenditure was three times more common among low-income groups, amplifying mental distress.
- Gender: Young women faced greater risks, with 50% in a Pakistani study reporting depression linked to OOPHE, compared to 20% of men. Women's caregiving roles and lower earnings were key factors, with qualitative data highlighting "pressure to provide" as a stressor.
- Location: Rural young adults experienced higher mental health impacts due to access barriers. In Bangladesh, rural participants were 1.8 times more likely to report stress from OOPHE, driven by travel costs and limited facilities.
- Education: Less-educated young adults were more vulnerable, with 40% in an Indian study reporting depression from OOPHE, compared to 15% of those with higher education. Education provided coping skills, reducing distress.

Table 3 details these variations, showing how different groups are affected.

Table 3: Socioeconomic and Demographic Variations in OOPHE-Mental Health Link

Factor	Mental Health Impact	Key Finding
Income	Higher in low-income	70% anxiety prevalence in low-income (Kenya)
Gender	Higher in women	50% depression in women vs. 20% in men (Pakistan)
Location	Higher in rural	1.8x stress risk in rural areas (Bangladesh)
Education	Higher in less-educated	40% depression in less-educated (India)

Contextual Factors

Contextual factors shaped the OOPHE-mental health relationship, reported in 28 studies (74%). Weak health financing systems, with public health spending below 5% of GDP in many LMICs, drove reliance on OOPHE. In Nigeria, low public investment (3.7% of GDP) increased OOPHE, correlating with higher stress. Limited insurance coverage—only 15% of young adults in India had insurance—exacerbated financial strain. Cultural factors, like mental health stigma, reduced help-seeking, with 50% of Pakistani participants avoiding mental health care due to shame. Community support mitigated impacts: in Rwanda, mutual aid groups reduced stress by sharing medical costs.

Gaps and Limitations

While robust, our findings highlight gaps. Only 20% of studies were longitudinal, limiting insights into long-term effects. Smaller LMICs, like those in Central Africa, were underrepresented, with data skewed toward larger economies. Qualitative studies (10%) provided rich insights but were few, missing nuanced experiences. Some studies lacked detailed demographic breakdowns, obscuring intersectional effects (e.g., gender and income combined).

What This Means for Young Adults

These results paint a stark picture: OOPHE is a heavy weight on young adults in LMICs, pushing many into a cycle of financial hardship and mental distress. Anxiety and depression are common, driven by economic strain, debt, caregiving, and skipped care. Women, rural, and low-income youth bear the brunt, facing higher risks due to systemic inequities. Yet, there's hope—community support and insurance schemes show promise, suggesting paths to ease the burden. These findings are a call to action: reducing OOPHE and boosting mental health support can transform lives, helping young adults thrive without the shadow of unaffordable healthcare.

DISCUSSION

Our systematic review of 38 studies across 22 LMICs confirms that out-of-pocket health expenditure (OOPHE), comprising 35–70% of health spending, significantly drives anxiety, depression, and stress among young adults aged 18–30 [29]. In Nigeria, catastrophic expenditure—OOPHE exceeding 30% of income—doubled depressive symptoms [16]. The Stress Process Model explains this, linking financial stressors to primary distress (e.g., anxiety from bills) and secondary effects (e.g., strained relationships) [14]. In Bangladesh, young women described "constant worry" about costs, leading to hopelessness [11], reinforcing financial toxicity [10].

High OOPHE delays or prevents treatment, worsening health outcomes. In Ethiopia, 30% of young adults skipping care due to costs reported heightened distress [21]. Patient safety is compromised as financial pressures drive reliance on unregulated providers, risking harm [7]. Underfunded health systems, receiving less than 5% of GDP, push patients to costly private providers, straining service delivery [8].

Low-income, rural, and female young adults face greater impacts. In Kenya, low-income youth were three times more likely to experience catastrophic expenditure, increasing anxiety [6]. Rural Bangladeshi youth reported 1.8 times higher stress due to travel costs [11], while Pakistani women, often caregivers, faced doubled depression rates [18], aligning with the Social Determinants of Health Framework [17]. These inequities limit access to mental health support, exacerbate safety risks, and leave rural areas under-served [7,8,23].

Key mechanisms—economic strain, debt, caregiving burden, and foregone care—amplify distress. In India, 40% of young adults cut educational spending, fostering feelings of failure [19]. In Nigeria, 60% borrowed for OOPHE, fearing repayment [16], driven by loss aversion

[20]. South African female caregivers reported "exhaustion" from costs [23], while Ethiopian youth felt "trapped" by untreated conditions [21]. Interventions like Ghana's fee exemptions, reducing anxiety by 15% [27], and integrating mental health into primary care can enhance care, safety, and delivery [8]. These findings underscore the need for policies promoting equity and reducing OOPHE's burden, aligning with universal health coverage goals.

Contextual Factors

Low public health spending, often below 5% of GDP, drives reliance on out-of-pocket health expenditure (OOPHE) in low- and middle-income countries (LMICs) [2]. In Nigeria, 3.7% GDP allocation correlated with higher stress among young adults [16]. Limited insurance coverage—only 15% of Indian youth insured—intensifies financial strain [19]. Cultural stigma, noted by 50% of Pakistani participants, discourages mental health help-seeking, worsening distress [18]. Community support, like Rwanda's mutual aid groups, mitigates stress by sharing costs [28]. The Life Course Perspective highlights how OOPHE-related financial hardship in young adulthood leads to chronic depression, impacting education and employment in South Africa [22,23]. For patient care, stigma reduction campaigns can improve help-seeking. Patient safety requires regulating providers to curb unsafe practices [7]. Service delivery can adopt community models like Rwanda's to enhance access [28].

Implications for Universal Health Coverage

High OOPHE undermines universal health coverage (UHC), with 12% of LMIC households facing catastrophic expenditure [12]. Young adults' mental health challenges cost India $22 billion annually in productivity [26]. UHC-driven insurance expansion, as in Rwanda, reduces OOPHE [28]. Patient safety improves with regulated services, and service delivery benefits from mental health integration, addressing the 80% treatment gap [5,7]. These align with SDG 3's health equity goals [9].

Strengths and Limitations

This review's strength is its comprehensive scope—38 studies across 22 LMICs—using robust quality assessments. However, only 20% of studies were longitudinal, limiting long-term insights. Smaller LMICs were underrepresented, and qualitative studies (10%) lacked depth [4]. These gaps highlight the need for further research.

Future Directions and Recommendations

To reduce OOPHE's mental health toll, expand insurance, as in Ghana, to lower barriers [27]. Regulate private providers for patient safety [7]. Integrate mental health into primary care, as in South Africa, to improve service delivery [23]. Increase public health spending to 6% of GDP, scale community-based insurance, and launch stigma reduction campaigns [2,28]. Future research should focus on longitudinal studies, smaller LMICs, and intersectional factors like gender and income [11,30]. Addressing OOPHE ensures young adults in LMICs access care without sacrificing mental well-being, supporting resilient health systems.

CONCLUSION

Our review of 38 studies across 22 low- and middle-income countries (LMICs) shows that out-of-pocket health expenditure (OOPHE), often 35–70% of health spending, drives anxiety, depression, and stress among young adults aged 18–30. Consuming 20–30% of income, OOPHE forces tough choices, with low-income, rural, and female youth hit hardest. Mechanisms like debt and foregone care fuel a cycle of distress, undermining patient care, safety, and service delivery. The Stress Process Model and Social Determinants of Health Framework highlight how financial strain and inequities shape outcomes. For patient care, reducing OOPHE can improve treatment access; for safety, it prevents unsafe care; for service delivery, it eases system strain. Gaps in longitudinal and qualitative research call for deeper study. Solutions include scaling insurance, increasing health spending, and integrating mental health into primary care. By addressing OOPHE, we can empower young adults, vital to LMICs' futures, to thrive without financial fear, aligning with universal health coverage goals.

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REFERENCES:

1. World Health Organization (2023) Global health expenditure report 2023. Geneva: WHO.
2. World Bank (2024) Health financing in low and middle-income countries. Available at: https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS [Accessed 17 May 2025].
3. Garg, C.C. and Karan, A.K. (2022) 'Out-of-pocket health expenditure and its impact on Indian households', Indian Journal of Public Health, 66(2), pp. 123–134.
4. Sauerborn, R., Adams, A. and Hien, M. (2023) 'Financial burdens of healthcare among young adults in LMICs', Global Public Health, 18(3), pp. 345–356.

5. Patel, V., Saxena, S. and Lund, C. (2021) 'The burden of mental disorders in low and middle-income countries', The Lancet Psychiatry, 8(7), pp. 567–578.
6. Barasa, E., Kazungu, J. and Nguhiu, P. (2021) 'Healthcare financing in Kenya: The role of out-of-pocket payments', Health Policy and Planning, 36(5), pp. 678–689.
7. Mackey, T.K. and Liang, B.A. (2022) 'Corruption and healthcare financing in LMICs', Global Health Action, 15(1), pp. 234–245.
8. Kruk, M.E., Gage, A.D. and Arsenault, C. (2022) 'Health system financing in low and middle-income countries', The Lancet Global Health, 10(5), pp. e678–e689.
9. United Nations (2015) Sustainable Development Goals. New York: UN.
10. Zafar, S.Y. and Abernethy, A.P. (2021) 'Financial toxicity in healthcare: Implications for mental health', Journal of Clinical Oncology, 39(6), pp. 678–689.
11. Hossain, M.M., Alam, M. and Rahman, S. (2022) 'Out-of-pocket expenditure and mental health in Bangladesh', Bangladesh Medical Research Council Bulletin, 48(2), pp. 89–100.
12. Wagstaff, A., Flores, G. and Hsu, J. (2020) 'Catastrophic health expenditure in low and middle-income countries', Bulletin of the World Health Organization, 98(6), pp. 418–429.
13. Kohrt, B.A., Asher, L. and Bhardwaj, A. (2020) 'Cultural and social influences on mental health in LMICs', Social Science & Medicine, 265, pp. 113–124.
14. Pearlin, L.I. (1989) 'The sociological study of stress', Journal of Health and Social Behavior, 30(3), pp. 241–256.
15. Lund, C., Brooke-Sumner, C. and Baingana, F. (2022) 'Social determinants of mental health in LMICs', Global Mental Health, 9, pp. 234–245.
16. Ogunniyi, A., Adeyemi, O. and Okafor, C. (2023) 'Healthcare costs and depressive symptoms among Nigerian youth', African Journal of Psychiatry, 26(3), pp. 234–245.
17. World Health Organization (2008) Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva: WHO.
18. Ahmed, S. and Khan, A. (2023) 'Financial stress and mental health among young adults in Pakistan', Pakistan Journal of Medical Sciences, 39(4), pp. 456–467.
19. Singh, R. and Kumar, V. (2022) 'Impact of healthcare expenditure on education among Indian youth', Economic and Political Weekly, 57(4), pp. 45–56.
20. Kahneman, D. and Tversky, A. (1979) 'Prospect theory: An analysis of decision under risk', Econometrica, 47(2), pp. 263–291.
21. Teshome, A., Kebede, Y. and Abate, T. (2022) 'Foregone care and mental distress in Ethiopia', Ethiopian Journal of Health Sciences, 32(4), pp. 567–578.
22. Elder, G.H. (1998) 'The life course as developmental theory', Child Development, 69(1), pp. 1–12.
23. Nkosi, N., Petersen, I. and Maitra, S. (2023) 'Caregiving and mental health among South African youth', South African Journal of Psychology, 53(2), pp. 123–134.
24. United Nations (2024) World population prospects: The 2024 revision. New York: UN.
25. Bloom, D.E., Cafiero, E.T. and Jané-Llopis, E. (2011) The global economic burden of non-communicable diseases. Geneva: World Economic Forum.
26. Sagar, R., Dandona, R. and Gururaj, G. (2020) 'The burden of mental disorders in India', The Lancet Psychiatry, 7(2), pp. 148–161.
27. Asante, A., Price, J. and Hayen, A. (2021) 'Financial stress and mental health in Ghanaian households', Health Economics Review, 11, pp. 34–45.
28. Chemouni, B. (2021) 'Community-based health insurance in Rwanda: Successes and challenges', Health Policy and Planning, 36(6), pp. 789–800.
29. World Health Organization (2019) Global health expenditure report. Geneva: WHO.
30. Alrashed, A., & Mohamed, H. R. (2024). Patient out-of-pocket expenditure in primary care comparing high income, middle income and low-income countries. International Journal of Health Sciences, 8(S1), 1365²1388. https://doi.org/10.53730/ijhs.v8nS1.15241