

Measuring progress towards universal health coverage in 22 Middle East and North African countries

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ABSTRACT

Purpose: Monitoring progress towards universal health coverage (UHC) has become increasingly important, especially given the centrality of UHC in achieving the sustainable development goals. We sought to estimate the progress towards UHC in the 22 Middle East and North Africa (MENA) countries.

Methods: Employing the Joint World Bank and World Health Organization Framework for Monitoring UHC, we estimated the UHC index for MENA countries using both service coverage and financial protection indicators. We also explored the correlation between the UHC index with government expenditure/investment in health.

Results: The 2021 UHC index ranged from 48.2 (Somalia) to 90.3 (United Arab Emirates) with a mean, median, and standard deviation of 74.9, 77.4, and 11.1, respectively, with significant differences between low-income and high-income countries. Service coverage lags behind financial protection in most MENA countries. There is a significant positive relationship between UHC and government health spending/investments.

Conclusion: The majority of MENA countries are yet to achieve UHC. There is a need to expand healthcare services, especially PHC services, and adopt strategies that address concerns related to financial protection.

1. Introduction

Universal Health Coverage (UHC) has been defined as the desired outcome of health system performance, whereby all people who need healthcare services (promotion, prevention, treatment, rehabilitation, and palliative care) receive them, without undue financial hardship [1]. Health is a foundational investment in human capital and in economic growth—without good health, children are unable to go to school and adults are unable to go to work. Financing healthcare services, therefore, is not an expenditure, but an investment in human capital [2]. UHC is central to achieving the Sustainable Development Goals (SDG) since health is a precondition for, an outcome of, and an indicator of all three dimensions of sustainable development [1,3,4]. Health systems with universal access protect individuals from illness, stimulate economic growth, fight poverty by keeping people healthy, and fosters social harmony by providing and assuring the population that healthcare services are available in the event of illness [5].

UHC is generally considered to have two dimensions: service coverage (SC) – everyone, irrespective of ability-to-pay, getting the

services they need; and financial protection (FP) – nobody suffering financial hardship as a result of receiving needed care [6]. The UHC index captures and measures both dimensions of the UHC construct to facilitate tracking of progress, comparison between countries, and guide policy decisions along both dimensions [6,7]. Since policymakers care about both UHC dimensions: *service coverage* and *financial protection* and are presumably willing to trade off one against the other, the UHC index is, therefore, a geometric mean of the two UHC dimensions expressed in a score that ranges from 0 to 100, with higher scores better [6,7]. Several studies have used the UHC index to measure, monitor, and compare progress towards UHC [6–8].

Effectively monitoring progress towards UHC has become increasingly important, especially given the centrality of UHC in the SDG era and its ascent in policy dialogues [9]. Employing the Joint World Bank and World Health Organization (WHO) Framework for Monitoring UHC, we sought to estimate the UHC index for 22 Middle East and North Africa (MENA) countries [10]. Our study findings could potentially support tracking progress towards UHC and inform policy and research in the region.

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2. Methods

We sourced data for estimating the UHC index for these countries from the WHO's Global Health Observatory (GHO) and the World Bank's Health Equity and Financial Protection Indicators [11,12]. We identified included countries from the WHO Eastern Mediterranean region [13].

Service coverage: Refers to “the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population” [11]. The index is reported on a unitless scale of 0 to 100 and computed as the geometric mean of 14 tracer indicators of health service coverage organized in four components: reproductive, maternal, newborn and child health (RMNCH); infectious diseases (ID); non-communicable diseases (NCD); and service capacity and access (SCA) [11].

Financial Protection: We employed catastrophic out-of-pocket (OOP) health expenditure (abbreviated as “CATA”), defined as spending that is beyond a certain percentage of a household's total consumption; and impoverishing OOP healthcare expenditure (abbreviated as “IMPOV”), defined as occurring if a household drops below the poverty level due to OOP spending [10]. While the IMPOV conveys the issue of how OOP expenses can result in hardship, CATA does not always result in poverty but captures the exposure to financial risk. We chose 10 % of the household's total consumption for CATA and the \$1.90-a-day international poverty level for IMPOV.

For countries with missing data from these databases, we extracted and used data from peer-reviewed studies employing nationally representative surveys ahead of hospital-based data or administrative data [10,14–21]. Since our data for the two main dimensions of the UHC index come from different surveys conducted across different years, we chose 2021 as the median year [6,7]. If estimates were not available for 2021, we used the most recent previous or following year's estimates.

Based on previous studies [6–8], we computed the complements of the FP indicators (CATA and IMPOV) to capture the portion of the population that is not incurring catastrophic spending and is not impoverished. We computed the FP index as the geometric mean of the complements of both indicators assigned equal weight. We used geometric mean, instead of arithmetic mean, to penalize countries that scored very highly on one indicator or dimension but poorly on the other [7].

$$FP\ index = ((1 - CATA) (1 - IMPOV))^{1/2} \quad (1)$$

We then computed the SC index as the geometric mean of the four components assigning weights [6,7].

$$SC\ index = (RMNCH^* ID^* NCD^* SCA)^{1/4} \quad (2)$$

Finally, we computed the UHC index as the geometric mean of the SC and the FP indexes. We assigned equal weights to both dimensions since policymakers are willing to trade off one for the other.

$$UHC\ index = (SC\ index^* FP\ index)^{1/2} \quad (3)$$

We explored the correlation between the estimated UHC index and government health spending/investments using Pearson's correlation with Bonferroni-adjustment at a 1.0 % significance level. We evaluated the elasticity of the change in the UHC index resulting from some percentage change in government health spending/investment.

3. Results

The current study includes 22 countries with over 722 million people, representing over 9.2 % of the global population [22]. Table 1 lists the UHC index results, which ranges from a minimum of 48.2 (Somalia) to 90.3 (United Arab Emirates) with a regional mean, median, and standard deviation of 74.9, 77.4, and 11.1, respectively. All the MENA

Table 1

Service coverage index, financial protection index, and UHC index of the health systems in MENA countries.

Country	Population (in thousands)	UHC legislation	Service Coverage (SC) index	Financial protection (FP) index	UHC index
Afghanistan	40,099	No	40.9	80.9	57.5
Bahrain	1463	Yes	76.0	97.5	86.1
Djibouti	1106	No	43.9	98.4	65.7
Egypt	109,262	No	70.2	82.3	76.0
Iran, Islamic Republic of	87,923	No	74.3	91.9	82.7
Iraq	43,534	No	58.5	88.8	72.1
Jordan	11,148	Yes	64.9	96.5	79.1
Kuwait	4250	Yes	77.8	95.9	86.4
Lebanon	5593	No	72.6	79.0	75.7
Libya	6735	No	62.1	72.0	66.9
Morocco	37,077	No	69.5	95.5	81.4
Oman	4520	Yes	69.9	99.7	83.5
Pakistan	231,402	No	45.2	95.8	65.8
Palestine (Occupied Palestine territory)	5133	No	61.0	96.1	76.6
Qatar	2688	No	76.4	99.2	87.0
Saudi Arabia	35,950	No	74.4	99.1	85.9
Somalia	17,066	No	26.8	86.7	48.2
Sudan	45,657	No	43.5	90.4	62.8
Syrian Arab Rep.	21,324	No	64.1	96.4	78.6
Tunisia	12,263	Yes	67.1	91.2	78.2
United Arab Emirates	9365	Yes	81.8	99.8	90.3
Yemen	32,982	No	42.5	87.2	60.9

countries recorded lower SC indexes than FP indices. Only six of the 22 MENA countries have enacted legislation formalizing their commitment to universal health coverage: Bahrain, Jordan, Kuwait, Oman, Tunisia, and United Arab Emirates (Table 1). Fig. 1 shows the disparity in the distribution of UHC indices based on national income groups. The trend indicates an increase in the UHC index with the country's income, where the lowest UHC index is found in low-income countries and vice versa.

Fig. 2a presents that the domestic governmental general health expenditure as a percentage of Gross Domestic Product (GDP) and the UHC index, $r(20) = +0.752$, $p \leq 0.001$, share a strong positive relationship suggesting that a higher domestic government health spending/investment improves the UHC index. The estimated elasticity of +0.228 shows that a one-percentage-point increase in government-health-spending-as-a-share-of-the-GDP raises the UHC index by 0.228 %. Likewise, there was a significant positive relationship between the government health expenditure as a percentage of the current health expenditure and the UHC index, $r(20) = +0.794$, $p \leq 0.001$. Fig. 2b presents a strong positive relationship between the government health expenditure as a percentage of the current health expenditure and the UHC index, indicating that increased government contribution to health provision and payment (relative to household OOP expenditure and external/donor funding) improves the UHC index. An estimated elasticity of +0.266 indicates that a one-percentage-point increase in government contribution to overall health expenditure raises the UHC index by 0.266 %.

4. Discussion

Our study indicates that universal access to high quality healthcare services without any individuals suffering financial hardship remains a challenge in MENA countries. Specifically, our study shows that region's low- and middle-income countries (LMICs) in the region have low universal coverage, especially service coverage. This could be due to the orientation of the health infrastructure around tertiary care and big hospitals, and concentration of health facilities in urban areas and

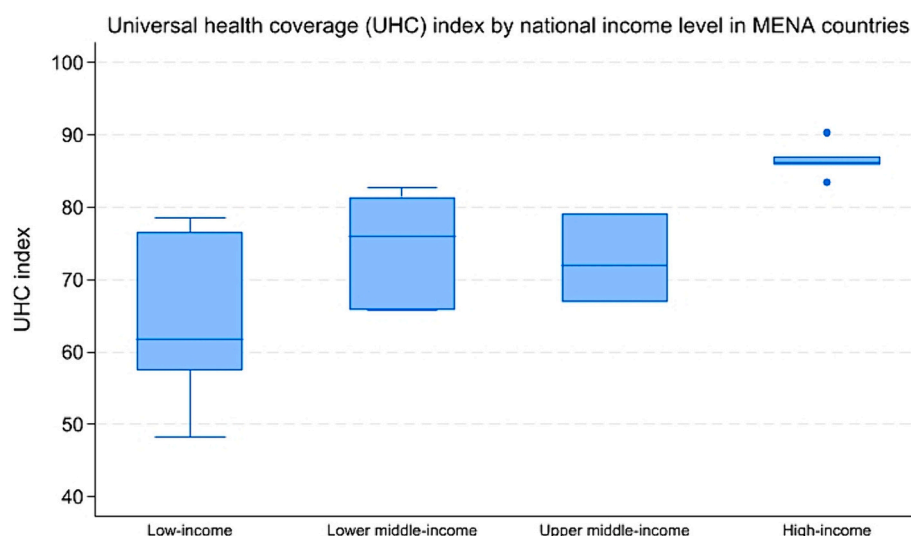


Fig. 1..

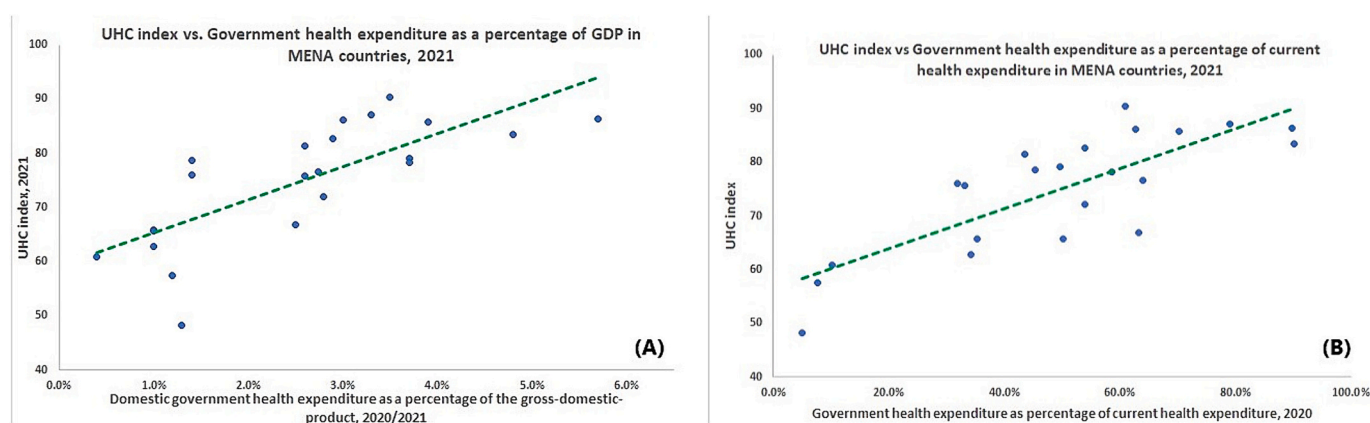


Fig. 2..

geared towards wealthier households [23,24]. Primary health care (PHC), however, is essential for equitable access and cost-effective healthcare [24–26]. Health systems organized around PHC with healthcare workers competent in primary care realize better population health at lower healthcare costs [25,27]. Ongoing healthcare reforms in the regions should prioritize extending PHC facilities across all regions, foster the working capacity of healthcare workers in PHC, and develop quality measures to offer PHC services [24–27]. Indonesia in 2014, for example, reorientated their health system towards PHC to accommodate the diverse needs of different communities and guarantee access to safe and quality healthcare [28]. Refocusing the health system towards PHC, along with policy changes including prospective payment of capitation, hospital care payment based on case-based groups, increased access to adequate healthcare services in Indonesia from 53 % in 2013 to 84 % in 2017 [28]. Also, previous investments in PHC as the foundation for UHC improved access to healthcare services in Brazil and South Africa [29].

Our study also demonstrates the importance of government investments in providing healthcare services and addressing financial risk protection. Broad investments across the health system covering primary, secondary, tertiary, and quaternary care in Indonesia, China, and South Africa have significantly improved healthcare access and financial protection for their population, especially the poor [6,29–31]. However, political stability – the preservation of a stable, well-functioning political or governmental system, free from major upheavals or changes over time – another important factor for the development of social security in

a country, is critical for the progress towards UHC [23]. For example, Yemen has been politically unstable for nearly a decade (civil war started in September 2014) while Libya has been embroiled in political conflict for over a decade (2011) [27,32]. Even worse is the current conflict in Gaza that has imposed a severe and disastrous impact on the lives and health of Palestinians in Gaza since October 2023, with over 36,000 deaths and over 81,000 injuries, mostly women and children [33–35]. Unfortunately, social and political upheavals have had enduring repercussions throughout the region, especially on the post-conflict health systems in these countries, especially in Libya, Palestine, Somalia, Sudan, Syria, and Yemen [27,32]. For example, a 2023 WHO report showed that the protracted conflict in Yemen have left half of Yemeni health facilities either partially functional or completely out of service because of lack of staff, funds, electricity, medicines, supplies, and equipment [36]. While Iraq, Libya, Syria, and Yemen remain embroiled in prolonged conflicts, Iran, Lebanon, and Palestine continue to experience political instability, and Jordan grapple with huge refugee population [27,32]. Although some nations such as Algeria, Egypt, Morocco, and Tunisia are more stable, they are undergoing significant changes and reforms. As MENA countries enjoy more political stability, their respective governments must prioritize health investments that expand provision of healthcare services, especially PHC services, to improve service coverage [37].

Unfortunately, we did not assess the equality dimension of UHC index as single national UHC estimates, such as ours, mask huge

disparity in the service and financial protection coverage between poor and wealthy households [17,19]. Additionally, many MENA countries, including some technologically advanced high-income nations, lack institutional data on essential financial protection indicators that could jeopardize efforts to monitor progress [23]. Despite these limitations, our study demonstrates the need to regularly monitor progress. Our study also illustrates the critical role of central and regional governments in the provision of healthcare services, especially PHC services. Mainly, MENA countries must double public funding for healthcare to reach the recommended 5 %-of-GDP threshold required to achieve UHC [30]. Finally, our study also suggests the need for the LMICs in the region to advance innovative healthcare financing mechanisms, including community-based health insurance schemes, that enhance access to healthcare as well as protect from catastrophic expenditures [38–40].

5. Conclusion

Healthcare is undoubtedly essential for human development, but access to quality healthcare remains an economic burden for many individuals in MENA countries. Advancing innovations that expand access to healthcare, including PHC services, and adopting financing mechanisms that address financial protection are essential to leaving no-one in the region behind.

Ethics approval

Ethical approval for this study was not required; as it retrieved and synthesized publicly-available de-identified data.

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CRedit authorship contribution statement

Ahmed Hamood Alshehri: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Abdulhakim Ali Al-Selwi:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization. **Sergius Alex Agu:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Mohammed Amine Younes:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization.

Declaration of competing interest

Authors declare that they have no competing interests.

Data availability

The datasets analyzed in this study are publicly available from the sources mentioned in the article.

References

- [1] World Health Organization. Universal health coverage [Internet]. 2023 [cited 2023 Jun 10]. Available from: https://www.who.int/health-topics/universal-health-coverage#tab=tab_1.
- [2] Mills A. Health Care Systems in low- and Middle-Income Countries. *New England J Med* [Internet] 2014;370(6):552–7. Available from: <https://doi.org/10.1056/NEJMr1110897>.
- [3] Tangcharoensathien V, Mills A, Palu T. Accelerating health equity: the key role of universal health coverage in the sustainable development goals. *BMC Med* [Internet] 2015;13:101. Available from: <https://doi.org/10.1186/s12916-015-0342-3>.
- [4] Eze P, Lawani O, Agu J, Acharya Y. Catastrophic health expenditure in sub-Saharan Africa: systematic review and meta-analysis. *Bull World Health Organ* 2022;100(5):337–51.
- [5] Evans DB, Marten R, Etienne C. Universal health coverage is a development issue. *Lancet* 2012;380(9845):864–5.
- [6] Wagstaff A, Cotlear D, Eozenou PH-V, Buisman LR. Measuring progress towards universal health coverage: with an application to 24 developing countries. *Oxf Rev Econ Policy* 2016;32(1):147–89.
- [7] Wagstaff A, Dmytrachenko T, Almeida G, Buisman L, Eozenou PHV, Bredenkamp C, et al. Assessing Latin America's progress toward achieving universal health coverage. *Health Aff [Internet]* 2015;34(10):1704–12. Available from: <https://doi.org/10.1377/hlthaff.2014.1453>.
- [8] Wagstaff A, Neelsen S. A comprehensive assessment of universal health coverage in 111 countries: a retrospective observational study. *Lancet Glob Health* [Internet] 2020;8(1):e39–49. Available from: [https://doi.org/10.1016/S2214-109X\(19\)30463-2](https://doi.org/10.1016/S2214-109X(19)30463-2).
- [9] Asma S, Lozano R, Chatterji S, Swaminathan S, de Fátima Marinho M, Yamamoto N, et al. Monitoring the health-related sustainable development goals: lessons learned and recommendations for improved measurement. *Lancet* [Internet] 2020;395(10219):240–6. Available from: [https://doi.org/10.1016/S0140-6736\(19\)32523-1](https://doi.org/10.1016/S0140-6736(19)32523-1).
- [10] Boerma T, Eozenou P, Evans D, Evans T, Kieny MP, Wagstaff A. Monitoring progress towards universal health coverage at country and global levels. *PLoS Med* 2014;11(9):1001731.
- [11] World Health Organization. The Global Health Observatory [Internet]. 2023 [cited 2024 Jan 10]. Available from: <https://www.who.int/data/gho/data/indicators>.
- [12] The World Bank. Health Equity and Financial Protection Indicators (HEFPI) [Internet]. 2022 [cited 2023 Jun 9]. Available from: <https://datacatalog.worldbank.org/search/dataset/0038633>.
- [13] World Health Organization Regional Office for the Eastern Mediterranean. Countries [Internet] 2023. Available from: <https://www.emro.who.int/countries.html>.
- [14] Hogan DR, Stevens GA, Hosseinpour AR, Boerma T. Monitoring universal health coverage within the sustainable development goals: development and baseline data for an index of essential health services. *Lancet Glob Health* [Internet] 2018;6(2):e152–68. Available from: [https://doi.org/10.1016/S2214-109X\(17\)30472-2](https://doi.org/10.1016/S2214-109X(17)30472-2).
- [15] World Health Organization, World Bank. Global monitoring report on financial protection in health 2021. [Internet]. Geneva. 2021. Available from: <https://www.who.int/publications/i/item/9789240040953>.
- [16] Lozano R, Fullman N, Mumford JE, Knight M, Barthelemy CM, Abbafati C, et al. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the global burden of disease study 2019. *Lancet* [Internet] 2020;396(10258):1250–84. Available from: [https://doi.org/10.1016/S0140-6736\(20\)30750-9](https://doi.org/10.1016/S0140-6736(20)30750-9).
- [17] Alshamsan R, Leslie H, Majeed A, Kruk M. Financial hardship on the path to universal health coverage in the Gulf states. *Health Policy (New York)* [Internet] 2017;121(3):315–20. <https://doi.org/10.1016/j.healthpol.2016.12.012>.
- [18] Hamidi S, Narci HÖ, Akinci F, Nacakgedigi O. Examining health care spending trends over a decade: the Palestinian case. *East Mediterr Health J* 2015;21(12):861–70.
- [19] Al-Hanawi MK. Decomposition of inequalities in out-of-pocket health expenditure burden in Saudi Arabia. *Soc Sci Med* [Internet] 2021;286:114322. <https://doi.org/10.1016/j.socscimed.2021.114322>.
- [20] Morrar R, Jabr S, Ghandour R, Abu-Rmeileh NME, Forgione DA, Younis M. Identifying healthcare cost drivers in Palestine. *Int J Health Plan Manag* [Internet] 2021;36(3):911–24. <https://doi.org/10.1002/hpm.3119>.
- [21] Eze P, Idemili CJ, Lawani LO. Evaluating health systems' efficiency towards universal health coverage: a data envelopment analysis. *Inquiry (United States)* 2024;61. 00469580241235759.
- [22] United Nations. World Population Prospects 2022 [Internet]. 2022 [cited 2024 Jan 10]. Available from: <https://population.un.org/wpp/>.
- [23] Alami R. Health, social policy, and inclusive growth in MENA [Internet]. In: SOAS Department of economics working paper series. London: SOAS Department of Economics Working Paper Series; 2014. Report No.: 188. Available from: <http://www.soas.ac.uk/economics/>.
- [24] Al Saffer Q, Al-Ghaith T, Alshehri A, Al-Mohammed R, Al Homidi S, Hamza MM, et al. The capacity of primary health care facilities in Saudi Arabia: infrastructure, services, drug availability, and human resources. *BMC Health Serv Res* [Internet] 2021;21:365. <https://doi.org/10.1186/s12913-021-06355-x>.
- [25] Nashat N, Hadjij R, Al Dabbagh AM, Tarawneh MR, Alduwaisan H, Zohra F, et al. Primary care healthcare policy implementation in the Eastern Mediterranean region: experiences of six countries: part II. *Eur J General Pract* [Internet] 2020;26(1):1–6. <https://doi.org/10.1080/13814788.2019.1640210>.
- [26] Nikoloski Z, Wanniss H, Menchini L, Chatterjee A. Primary healthcare and child and maternal health in the Middle East and North Africa (MENA): a retrospective analysis of 29 national survey data from 13 countries. *SSM Popul Health* [Internet] 2021;13:100727. <https://doi.org/10.1016/j.ssmph.2021.100727>.
- [27] Katoue MG, Cerda AA, Garcia LY, Jakovljevic M. Healthcare system development in the Middle East and North Africa region: challenges, endeavors and prospective opportunities. *Front Public Health* [Internet] 2022;10:1045739. <https://doi.org/10.3389/fpubh.2022.1045739>.
- [28] Agustina R, Dartanto T, Sitompul R, Susiloretni KA, Suparmi Achadi EL, et al. Universal health coverage in Indonesia: concept, progress, and challenges. *Lancet* 2019;393(10166):75–102.
- [29] Marten R, McIntyre D, Travassos C, Shishkin S, Longde W, Reddy S, et al. An assessment of progress towards universal health coverage in Brazil, Russia, India, China, and South Africa (BRICS). *Lancet* 2014;384(9960):2164–71.
- [30] McIntyre D, Meheus F, Rottingen JA. What level of domestic government health expenditure should we aspire to for universal health coverage? *Health Econ Policy*

- Law [Internet] 2017;12(2):125–37. <https://doi.org/10.1017/S1744133116000414>.
- [31] Dieleman JL, Sadat N, Chang AY, Fullman N, Abbafati C, Acharya P, et al. Trends in future health financing and coverage: future health spending and universal health coverage in 188 countries, 2016–40. *Lancet* 2018;391(10132):1783–98.
- [32] Eze P, Al-Maktari F, Alshehri AH, Lawani LO. Morbidities & outcomes of a neonatal intensive care unit in a complex humanitarian conflict setting, Hajjah Yemen: 2017–2018. *Confl Health* [Internet] 2020;14(1):53. <https://doi.org/10.1186/s13031-020-00297-7>.
- [33] Beiraghdar F, Momeni J, Hosseini E, Panahi Y, Negah SS. Health crisis in Gaza: the urgent need for international action. *Iran J Public Health* 2023;52(12):2478–83.
- [34] Alokaily F. War and health crisis in Gaza. *Saudi Med J* 2024;45(1):9.
- [35] International Rescue Committee. Crisis in Palestine: What you need to know [Internet]. In: 2024 Emergency Watchlist; 2024 [cited 2024 May 29]. Available from: <https://www.rescue.org/article/crisis-palestine-what-you-need-know>.
- [36] Safeguarding hHealth in cConflict cCoalition. YEMEN: Ignoring Red Lines - Violence Against Health Care in Conflict. Baltimore. 2022.
- [37] Balkhi B, Alshayban D, Alotaibi NM. Impact of healthcare expenditures on healthcare outcomes in the Middle East and North Africa (MENA) region: a cross-country comparison, 1995–2015. *Front Public Health* [Internet] 2021;8:624962. <https://doi.org/10.3389/fpubh.2020.624962>.
- [38] Eze P, Ilechukwu S, Lawani LO. Impact of community-based health insurance in low- and middle-income countries: a systematic review and meta-analysis. *PLoS One* [Internet] 2023;18(6):e0287600. <https://doi.org/10.1371/journal.pone.0287600>.
- [39] Alkhamis A, Hassan A, Cosgrove P. Financing healthcare in gulf cooperation council countries: a focus on Saudi Arabia. *Int J Health Plan Manag* [Internet] 2014;29(1):e64–82. <https://doi.org/10.1002/hpm.2213>.
- [40] Rahman R, Salam MA. Policy discourses: shifting the burden of healthcare from the state to the market in the Kingdom of Saudi Arabia. *Inquiry* (United States) [Internet] 2021;58. <https://doi.org/10.1177/00469580211017655>. 00469580211017655.