Table 3 **Contact tracing applications developed in Eastern Mediterranean and selected Arab countries, 2020**

Name	Country	Language	Managed by	Link(s)@
Coronavirus Algérie[61]	Algeria	Arabic	Ministry of Micro-Enterprise, Startup and Economy of Knowledge	https://play.google.com/store/apps/details?id=com.covid19_algeria
BeAware	Bahrain	Arabic English Urdu, Hindi, Bengali and Persian	e-Governement Apps stores	https://apps.bahrain.bh/CMSWebApplication/action/howAppDetailsAction?selectedAppID =321&appLanguage=en
Egyptcare	Egypt	Arabic	MoH	https://apps.apple.com/eg/app/%D8%B5%D8%AD%D8%A9-%D9%85%D8%B5%D8%B1/id1506794318?ls=1 https://play.google.com/store/apps/details?id=com.IDSC.EgyCare
Mask	Iran	Farsi	Ministry of Health and Medical Education	https://www.mask.ir
Aman[62]*	Jordan	Arabic English	MoH	https://amanapp.jo/ClickCounter/Goto?linkType=android&language=en https://amanapp.jo/ClickCounter/Goto?linkType=apple&language=en
Shlonik	Kuwait	Arabic English	Central Agency for Information Technology	https://play.google.com/store/apps/details?id=com.healthcarekw.app&hl=en_US&gl=US
Ma3an[63]*	Lebanon	Arabic English	MoH	https://bit.ly/3bh9h0J https://apple.co/2QJbuJ6
Wiqaytna	Morocco	Arabic French	MoH	https://www.wiqaytna.ma/Default_Fr.aspx
Tarassud +[60]	Oman	Arabic English	MoH	https://play.google.com/store/apps/details?id=om.gov.moh.tarassudapplication&hl=en_US&gl=US https://apps.apple.com/om/app/tarassud/id1502105746
COVID-19	Pakistan	English	National IT Board	https://play.google.com/store/apps/details?id=com.govpk.covid19&hl=en_US&gl=US https://apps.apple.com/pk/app/covid-19-gov-pk/id1504847114
EHTERAZ	Qatar	Arabic English	Ministry Of Interior	https://www.acta.gov.qa/en/ehteraz/
Tabaud App	Saudi Arabia	Arabic English	MoH	https://tabaud.sdaia.gov.sa/IndexEn
Tawakkalna	Saudi Arabia	Arabic	MoH	https://covid19awareness.sa/en/apps-for-your-health-2
E7mi[64]	Tunisia	Arabic French	Observatory of Emerging Diseases	https://e7mi.tn/
ALHOSN UAE	UAE	Arabic English	MoH	https://www.alhosnapp.ae/en/home/

*Note: @Website to access app, *Information collected through the on-line survey (October to December 2020)*

and a homemade ventilator, which is being used in three hospitals in Somalia (27). These two designs along with the oxygen solutions mentioned earlier are the only innovations reported to be at the implementation stage. Two additional innovations, the 100% Moroccan[26] and Al Quds' University ventilators,[24] are reported to be at the production stage; while the remaining seem to be design prototypes.

Based on information from the online survey, four innovative processes and approaches were being used to address risk communication and community engagement. Two focused on raising awareness through children's play in Jordan and using existing social media platforms (https://twitter.com/sharjah_health) in Sharjah, United Arab Emirates. Palestine adapted health care policies to sustain management of patients with noncommunicable diseases. The United Nations Development Programme

(UNDP) is developing a WhatsApp application related to community engagement, to assist individuals in estimating their risk of COVID-19 infection. Further details about these initiatives are needed to better understand their usefulness and replicability.

Discussion

This mapping exercise identified 80 COVID-19 related health innovations conceived and/or used in countries of the Arab World, including the EMR. Two-thirds of the innovations were "digital health innovations", including telehealth and telemedicine, surveillance, and contact tracing, detection, and testing. The digital platforms, websites, smartphones and mobile applications are already in use, with many mobilized at the national level. The "non-digital health innovations" included IPC devic-