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## Letter to the Editor

## Medication safety education through games: a potential approach to educate healthcare students on adverse drug reactions

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Sir/Madam,

In the present era, there is a growing need for pharmacovigilance (PV) capacity building, particularly by professional training of healthcare professionals (HCPs) and hence students as our future HCPs.<sup>[1,2]</sup> It is expected that introducing a clinical component along with the basic aspects on medications would enhance students' clinical competency in identifying and correcting medication-related problems.<sup>[3]</sup>

Educational games could be beneficial to complement and reinforce what is taught during didactic lectures and promotes students' participation and engagement in an interactive, and motivational learning environment.<sup>[4]</sup> We describe a simple format of a game (experiences from institutions in Sultanate of Oman and Netherlands) which could be used during lectures or during teaching in clinical practice to assess the knowledge, educate and generate interest among healthcare students on adverse drug reaction (ADR)-related information. In the Sultanate of Oman, at the University of Nizwa, we employed an approach called as 'Who Am I questions?' Participants were 'provided with a statement' or 'read out a statement' based on which the participants are expected to identify the name of the drug associated with the statement. This format was used in two occasions at the University of Nizwa which are described as below. This game was used during an activity conducted by the pharmacy students' group, in which the pharmacy and nursing students participated and opined it to be an interesting approach. Further, this approach was used as one component during 'Medication Safety Knowledge Challenge'; a computer-assisted competitive event in a game format conducted for final year pharmacy students of the School of Pharmacy. This event was conducted in the Kahoot! Platform,<sup>[5]</sup> a game-based learning platform that makes it fun to learn. An example is as follows; Question (Q) and Answer (A): Q 'I am used in patients to control the blood sugar. I usually disturb the stomach of those who take me. If your kidney is not functioning properly, I could turn out to be very dangerous for you. Who Am I?, A: Metformin'.

In the Netherlands, another 'Who am I? game' is used as an in-class assignment with medical and pharmacy students. Small groups of 4–6 students are formed, and one student is selected as the candidate. The name of a drug and ADR are stated on a card which is then put on the fore head, or upside down on the table. Following this, the candidate has to ask questions to guess the drug and associated ADR. Group members are supposed to answer as 'Yes/No' in response to the questions of the candidate. An example by this approach is as follows; Q Am I a blood glucose-lowering drug? A (Yes), Q Am I contraindicated with poor renal function? A (Yes), Q Am I a common ADR? A (No) Q Am I a life-threatening ADR? A (Yes), Q Am I lactic acidosis with metformin? A (Yes). The learning outcome of this assignment is for the students to practise with different types of ADRs and including its characteristics such as risk factors, mechanism and seriousness. Furthermore, they understand and learn what questions need to be asked for recognizing an ADR. This game is commonly used during a lecture on an introduction to PV for 5th year medical and pharmacy students. It was noticed that this method was more beneficial when a mixed group of pharmacy and medical students are involved, since both groups can learn from each other.

In their daily practice, it is essential that HCPs have an in-depth knowledge on at least the major ADRs of various medications and the advantages of the same are multiple. Prevention and early detection of drug-induced harm imply competence of safe prescribing and dispensing drugs, including drug- and patient-related risk factors and monitoring parameters for ADRs. Knowledge about ADRs enables them to counsel patients beforehand about relevant side effects as well as to manage side effects when they do occur.<sup>[6]</sup>

With the game formats, we put emphasis on self-directed and context-based learning with focus on problem-solving skills, which promotes an active learning environment in small groups to enhance PV and medication safety competence, for students as well as HCPs.<sup>[2,7]</sup>

We consider these games as an interesting approach, which could be employed by those involved in PV education. This approach could be tailored depending on the needs as well as learning outcomes of the groups in various settings.

## Declarations

## Conflict of interest

The Author(s) declare(s) that they have no conflicts of interest to disclose.

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