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Considerations on out-of-hospital pain assessment of a diverse population

Abstract

Nearly all medical emergency calls are related to someone experiencing some form of discomfort either due to trauma or medical complaint causing pain. Initial pain assessment may be undertaken over the telephone by an emergency medical dispatcher, without seeing the patient, but the next key moment in pain assessment is done patient side by the paramedic. This inquiry is detailed and guides the paramedic in the formation of a differential diagnosis and providing appropriate pain management. The team recently conducted and published a study on pain assessment which raised concerns on the subjectivity of pain scoring. The work presented was in the context of a very multicultural environment. The aim of this commentary article is to further explore this topic and get healthcare professionals to reflect on this aspect of patient assessment.

Introduction

Pain is often the trigger which makes people call for an ambulance (Armour and Murphy-Jones, 2016) and alleviating pain and suffering is one of the first acts that a paramedic will try to perform upon meeting a patient. However easy as it sounds, many factors affect pain perception and reporting on the part of patients, and how the paramedic will deal with the situation (Siriwardena et al., 2019, Lord et al., 2014). Pain assessment is not only a difficult aspect of patient care in the pre-hospital setting (Lynde and Zorab, 2015), as it is also reported as challenging to be consistently performed and documented in Emergency Departments (Mazara et al., 2016). Although pain is a very subjective parameter, it is important that the paramedic appropriately assess pain and document it according. This is the first step in appropriate pain management and alleviation. Other factors of consideration include the paramedics scope of practice and legal aspects associated with the use of analgesic and pain medication. Controlled medication may be potentially lethal if inappropriately administered (Hodkinson, 2016). These elements may further influence or impede the decision-making process of paramedics in deciding what pain relief option to adopt.

In a country of around 2.7 million inhabitants with such a culturally and ethnically diverse population as Qatar (Fahy, 2019), healthcare delivery and expectations are accepted to be a challenge despite an organisation's best efforts to meet everyone's

needs. Hamad Medical Corporation Ambulance Service (HMCAS) is one of the many pieces that constitute the advanced public healthcare system of the State of Qatar (Alshamari, 2017, Al Jazairi and Alinier, 2021). HMCAS is the main national pre-hospital care provider, with a modern fleet of vehicles and a competent workforce (Hutton and Alinier, 2013, Gangaram et al., 2017), and despite having mixed ethnicity crews usually covering at least 3 languages within each ambulance (Arabic, English, and either Tagalog, Malayalam, Hindi, or French), communication issues with patients are still commonly faced. A study on pre-hospital analgesia for femur fractures conducted at HMCAS identified suboptimal administration of pain relief at the baseline measure of a quality improvement project but this was eventually addressed through a series of Continuing Professional Development (CPD) training sessions using simulation (Howland et al., 2019). The authors also concluded that pain management could still be further improved.

A variety of pain assessment tools have been created but are mostly dependant on paramedics being able to communicate with the patient (Armour and Murphy-Jones, 2016, Hjerstad et al., 2011, Parker and Rodgers, 2015). Hence, they are not always very easy to use when there is a language barrier, and the frustration on both sides may further negatively impact on the provision of adequate care. Some tools have been specifically designed to overcome this barrier; however, it still relies on the clinician to allocate a pain rating onto a patient based on their observations. The Critical Care Pain Observation Tool (CPOT) allocates individual scores out of two for each indicator such as facial expression, body movements, muscle tension, compliance with a ventilator or vocalisation (Gélinas et al. 2006). The COMFORT behaviour scale on the other hand assigns a score out of five for nine distinct parameters that include things like alertness, calmness, respiratory distress, physical movement, etc. (Ambuel et al. 1992). The Abbey Pain Scale is another tool designed to assess pain in people with dementia and scores the severity out of three for six questions that relate to vocalisation, facial expression, body language, behavioural, physiological, or physical changes (Abbey et al. 2004). All these tools use a broad and holistic approach to pain allocation based on patient observation.

Although it is intended to be used with children (Garra et al., 2010) and consists of simplistically drawn faces with different facial expressions, the Wong-Baker FACES® Pain Rating (WBFPR) scale becomes a very attractive tool when language is an issue with adult patients (Figure 1). The WBFPR is primarily a visual rating scale, using the facial expressions to distinguish pain intensity, however, it also incorporates numerical values and verbal descriptors attached to the faces that help clinicians understand and document pain. It is only natural to rely on the easiest perceived approach to ascertain someone's pain level, but it is not necessarily very effective or reliable as demonstrated by a recent study (Gangaram et al., 2021). Unsurprisingly, another motivation to conduct that study was that no research had previously been published on the use of the WBFPR scale in relation to its use with adult patients in the pre-hospital setting.

Importance of pain assessment and management

Pain assessment is an important clinical feature of patient care as it generally dictates the treatment options that the clinician can offer a patient. Although paramedics generally spend a limited amount of time with patients until they are transported to

hospital, a key intervention that will affect the patients' wellbeing is how they contribute to reducing their suffering and providing reassurance. All interventions performed on the patient and how they responded, needs to be communicated to the receiving team at the Emergency Department (ED) as part of the handover (Shah et al., 2016) to ensure adequate continuation of care. It is however commonly reported that pain management is often poorly documented in the pre-hospital setting and that all patients are not treated equally (Hewes et al., 2018). Patient factors such as age, race, gender, clinical condition, and level of education affects pain management (Hoffman et al., 2016, Campbell and Edwards, 2012, Whitley et al., 2019). The subjectivity of pain management is concerning, especially if patients face a long waiting time once in the ED before they receive definitive treatment (Parker and Rodgers, 2015). As such pain assessment can play a role in the appropriate and timely access to emergency healthcare (Al Jazairi and Alinier, 2021). These aspects were further motivational factors for conducting the pain management pilot study using the WBFPR scale which follows.

Pre-hospital use of the Wong-Baker FACES® Pain Rating Scale on adult standardised patients.

A critical element of the validation of a pain assessment tool is how it performs at helping clinicians to assess the level of pain a patient is experiencing. In a given patient situation, the pain score determined independently by different clinicians should be the same if the tool is valid and reliable, and determining this was the aim of the pilot study reported by Gangaram et al. (2021) due to the atypical patient group on which the scale is used by the paramedics from HMCAS. Instead of using the WBFPR scale with children only, it is also commonly used to assess the pain level of adult patients.

That prospective quantitative pilot study was conducted with a random convenience sample of HMCAS paramedics working in Qatar, while they were on standby at a hub or spoke station (Wilson et al., 2017) but in a way that did not negatively affect operational coverage, similarly to the process described by Alinier and Newton (2013). No pre-notification was sent to staff ahead of the study to avoid them trying to refresh themselves on the use of the WBFPR scale. Whoever was present at the location visited by the research team was invited to participate once they had read the information letter. Consenting staff were then allowed to take part in the study which involved a questionnaire and five scenarios with different adult standardised patients (SPs). Each of the five different cases were always played by the same persons to ensure good assimilation of their role and consistency in the acting. These SPs were actually instructors from the HMCAS Training Department. The scenarios and their respective pre-determined pain score were validated by an experienced team of academics and paramedics and were representative of the types of situations and types of patients commonly encountered in Qatar. The order in which the participants were encountering the SPs was determined using a randomization table.

A total of 35 staff took part in the study, which resulted in a total of 175 pain score assessments. That sample was representative of the overall staff population from a gender, nationality, scope of practice, and duration of work experience in Qatar. Critical care paramedics represented 8.6% (n=3) of the participants. Despite participants being reminded how to use the WBFPR scale upon consenting to take part in the study, and that the aim of the exercise was for them to get the patient to

identify their pain intensity score, it was surprisingly observed that many participants were not using the tool as intended. Some were instead directly basing the level of pain the SPs were portraying according to their facial expression instead of asking the patient to show their pain level on the scale. As such there was a poor agreement in their assessment of pain score, and only for the patient portraying the most severe level of pain was their agreement moderate to good. The overall correlation values of the pain scores among participants was poor (<0.50) and there was a significant difference of pain score allocations between the participants and the scenarios. Participants were usually 1 or 2 points away from the pre-determined pain score of each scenario. This shows that there was poor inter-rater reliability and sensitivity due to the way the tool was used inconsistently by staff. If the SPs had been asked to identify their pain level by the pre-hospital clinicians, the results of the study would have been very different.

Conclusion

On this occasion this pilot study helped the researchers identify that although pre-hospital clinicians in Qatar are already attending regular continuing professional development sessions, some refresher training on pain assessment is required. Based on the HMCAS Clinical Practice Guidelines, the administration of certain medications is based upon the actual patient's pain score, poor use of the WBFPR scale has a direct impact on patient care, which may lead to under- or over-treatment (Schryve, 2007). This further emphasises the need for training in using pain scoring tools, as advocated by others (Harvey, 2014), but also to ponder whether it is appropriate to adopt a tool initially intended to be used with children for a different age category of patients. The tool requires patients to communicate and self-allocate their pain rating and was not designed to be used as a single indicator for clinicians to 'impose' a pain score. Tools such as the CPOT, COMFORT, or Abbey, applied when patients are unable to communicate their pain use a multitude of parameters to help clinicians determine the level of a patient's pain, not just one factor. As it stands and given our understanding of the local context, we recommend that further research be conducted using a variety of approaches that will not confuse participants. The intention in the pilot study described by Gangaram et al. (2021) was to observe pre-hospital care clinicians use the WBFPR as they would do under normal circumstances when interacting with their patients, but it appears the context of the simulation environment, involving colleagues they may know as instructors playing the role of SPs, made some believe they could not directly ask the patients for their pain severity level while showing them the WBFPR scale. Another aspect which could be investigated using a much larger sample of participants and a higher number of scenarios or actual patient cases, would be to investigate the influence of patient and clinician's ethnicity and gender, on pain scoring and management due to some potential form of bias. Although similar work has been done in north America (Hewes et al., 2018); Hoffman et al., 2016), Qatar has a very different cultural and ethnicity mix.

References

- ABBEY, J., PILLER, N., DE BELLIS, A., ESTERMAN, A., PARKER, D., GILES, L., LOWCAY, B. 2004. The Abbey pain scale: a 1-minute numerical indicator for people with end-stage dementia. *International Journal of Palliative Nursing*, 10, 6-13.
- AL JAZAIRI, A. F. & ALINIER, G. 2021. Access to Emergency Health Care. In: AGRAWAL, A. (ed.) *Healthcare Access*. London: IntechOpen.
- ALINIER, G. & NEWTON, A. 2013. A model to embed clinical simulation training during ambulance shift work. *International Paramedic Practice*, 3, 35-40.
- ALSHAMARI, S. 2017. The Qatar health system: challenges and opportunities. *Network Intelligence Studies*, 5, 47-56.
- ARMOUR, R. & MURPHY-JONES, B. 2016. Appropriate pain assessment tools for use in patients with dementia in the out-of-hospital environment. *Journal of Paramedic Practice*, 8, 533-541.
- CAMPBELL, C. M. & EDWARDS, R. R. 2012. Ethnic differences in pain and pain management. *Pain management*, 2, 219-230.
- FAHY, J. 2019. Out of sight, out of mind: managing religious diversity in Qatar. *British Journal of Middle Eastern Studies*, 46, 640-662.
- GANGARAM, P., DIPPENAAR, E. & ALINIER, G. 2021. Paramedic adult pain assessment: Pilot study. *Journal of Paramedic Practice*, (in press).
- GANGARAM, P., MENACHO, A. M. & ALINIER, G. 2017. Crisis resource management in relation to empowering people to speak up in emergency medical service clinical practice settings. *Journal of Paramedic Practice*, 9, 60-65.
- GARRA, G., SINGER, A. J., TAIRA, B. R., CHOHAN, J., CARDOZ, H., CHISENA, E. & THODE, H. C. 2010. Validation of the Wong-Baker FACES pain rating scale in pediatric emergency department patients. *Academic Emergency Medicine*, 17, 50-54.
- HARVEY, C. 2014. Is there scope for an observational pain scoring tool in paramedic practice? *Journal of Paramedic Practice*, 6, 84-88.
- HEWES, H. A., DAI, M., MANN, N. C., BACA, T. & TAILLAC, P. 2018. Prehospital pain management: disparity by age and race. *Prehospital Emergency Care*, 22, 189-197.
- HJERMSTAD, M. J., FAYERS, P. M., HAUGEN, D. F., CARACENI, A., HANKS, G. W., LOGE, J. H., FAINSINGER, R., AASS, N. & KAASA, S. 2011. Studies comparing Numerical Rating Scales, Verbal Rating Scales, and Visual Analogue Scales for assessment of pain intensity in adults: a systematic literature review. *Journal of Pain and Symptom Management*, 41, 1073-1093.
- HMCAS 2017. Clinical Practice Guidelines. In: SERVICE, A. (ed.). Qatar: HMCAS.

- HODKINSON, M. 2016. Where is the paramedic profession going with pain management? *Journal of Paramedic Practice*, 8, 118-120.
- HOFFMAN, K. M., TRAWALTER, S., AXT, J. R. & OLIVER, M. N. 2016. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proceedings of the National Academy of Sciences*, 113, 4296-4301.
- HOWLAND, I. R., HOWARD, I. L., PILLAY, Y., LUDICK, B. D. & CASTLE, N. R. 2019. Prehospital analgesia for femur fractures: An improvement study. *Qatar Medical Journal*, 2019, 84.
- HUTTON, D. & ALINIER, G. 2013. Ambulance service operational improvement. *International Paramedic Practice*, 3, 61-63.
- LORD, B., BENDALL, J. & REINTEN, T. 2014. The influence of paramedic and patient gender on the administration of analgesics in the out-of-hospital setting. *Prehospital Emergency Care*, 18, 195-200.
- LYNDE, J. & ZORAB, O. 2015. Pre-hospital pain assessment and management: A Quality Improvement (QI) approach. *Emergency Medicine Journal: EMJ*, 32, e18.
- MAZARA, L., ZAREEI, M. A., GHARIB, A. & ALJAZZAZI, H. S. 2016. A study to assess the compliance rate with pain assessment and reassessment by nurses in ED, HGH - A quality improvement initiative. *Journal of Emergency Medicine, Trauma and Acute Care*, 2016, 2 - International Conference in Emergency Medicine and Public Health- Qatar Proceedings.
- PARKER, M. & RODGERS, A. 2015. Management of Pain in Pre-Hospital Settings. *Emergency nurse: the journal of the RCN Accident and Emergency Nursing Association*, 23, 16-23.
- SCHYVE, P. M. 2007. Language differences as a barrier to quality and safety in health care: the Joint Commission perspective. *Journal of General Internal Medicine*, 22, 360-361.
- SHAH, Y., ALINIER, G. & PILLAY, Y. 2016. Clinical handover between paramedics and emergency department staff: SBAR and IMIST-AMBO acronyms. *International Paramedic Practice*, 6, 37-44.
- SIRIWARDENA, A. N., ASGHAR, Z., LORD, B., POCOCK, H., PHUNG, V.-H., FOSTER, T., WILLIAMS, J. & SNOOKS, H. 2019. Patient and clinician factors associated with prehospital pain treatment and outcomes: cross sectional study. *The American journal of emergency medicine*, 37, 266-271.
- WHITLEY, G. A., HEMINGWAY, P., LAW, G. R. & SIRIWARDENA, A. N. 2019. The complexity of pain management in children. *Journal of Paramedic Practice*, 11, 466-468.

WILSON, P., ALINIER, G., REIMANN, T. & MORRIS, B. 2017. Influential Factors on Urban and Rural Response Times for Emergency Ambulances in Qatar. *Mediterranean Journal of Emergency Medicine*, 26.



Figure 1: Wong-Baker FACES Pain Rating Scale (HMCAS, 2017)