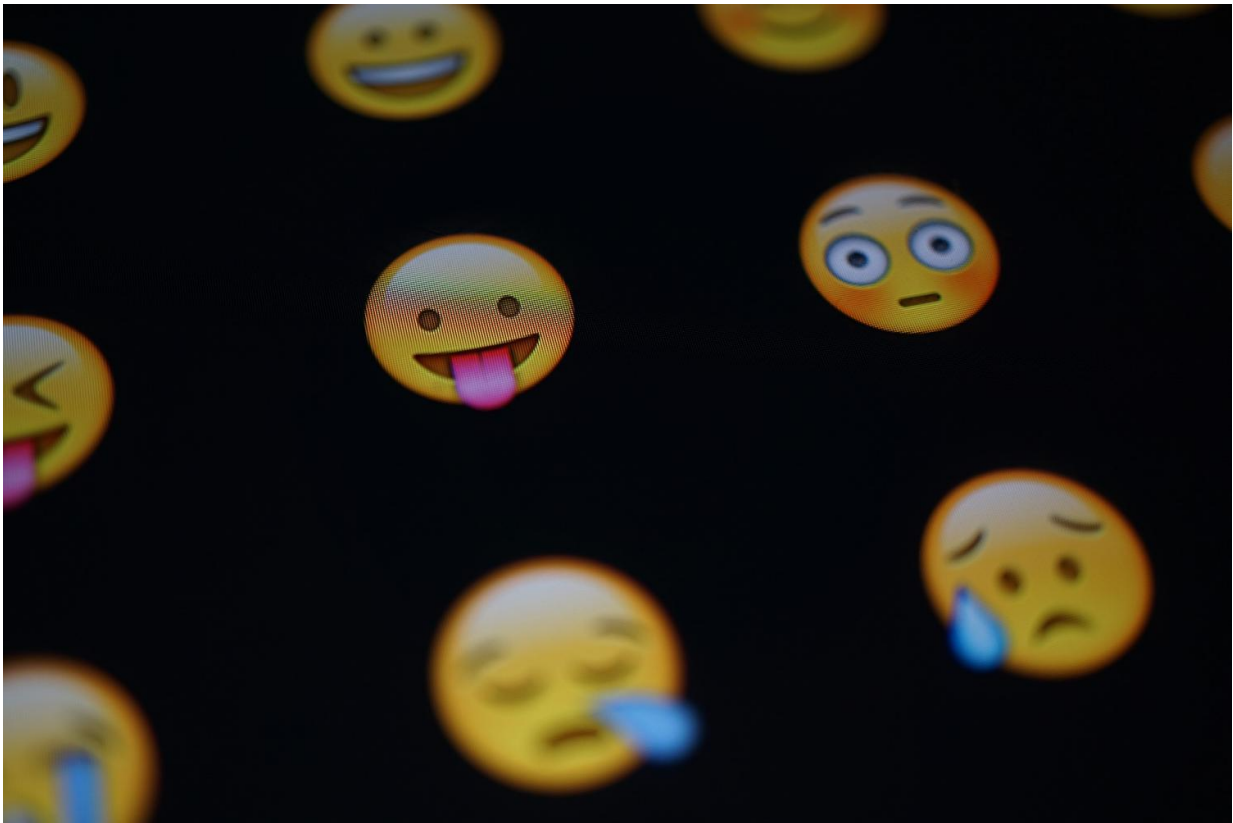


Study finds emojis promising tool for tracking cancer patients' quality of life

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In findings presented to the American Society of Hematology, Mayo Clinic researchers found that using emojis instead of traditional emotional scales were helpful in assessing patients' physical, emotional

and overall quality of life. Researchers found that using iPhones and Apple Watches were favored by patients, and the technology helped collect study data accurately and efficiently. The study, created using Apple's ResearchKit framework, showed that Apple Watch provides objective, continuous activity data that correlates with established cancer patient-reported outcomes.

"Cancer patients receive complex medical care, including surgery, radiation, chemotherapy and targeted agents that may result in physical, emotional, financial and spiritual consequences that can negatively impact quality of life and the ability to perform certain activities without help," says lead author Carrie Thompson, M.D., a hematologist at Mayo Clinic. "These quality of life factors play an important role in predicting survival and determining the best treatment options."

Dr. Thompson says gauging a patient's quality of life and performance status can be challenging, because it typically involves completing lengthy paper questionnaires, which can be burdensome for patients and may be inaccurate. "In our study, we wanted to determine if wearable technology data could be correlated with traditional, validated patient-reported outcome measures in [cancer patients](#)," says Dr. Thompson.

Researchers recruited 115 patients with lymphoma and multiple myeloma at Mayo Clinic with expected life spans of less than five years and who owned an iPhone 5 or later. All patients were provided with an Apple Watch and downloaded a study app at enrollment. Researchers collected baseline data, including questions regarding physical function, fatigue, sleep, social role, function and quality of life.

In addition, researchers developed two electronic emoji scales to measure quality of [life](#).

"Emojis are a near universal, popular form of communication,

understandable by diverse populations, including those with low health literacy," says Dr. Thompson. "There are several studies that attempt to predict individual well-being based on analysis of social media postings on Facebook and Twitter, but these studies do not focus on emojis as a mechanism for patients to express how they are feeling on a given day. If we can demonstrate that simple emojis are a valid and reliable measure of patient well-being, it could transform the way patient well-being assessments are accomplished."

During the first week of the study, patients wore their Apple Watch for an average of 9.3 hours per day, took 3,760 mean steps per day, exercised 8.3 minutes per day, were sedentary 224.9 minutes per day, and burned 115.8 kilocalories per day. Researchers observed significant associations between standard patient-reported outcome measures and activity data. The strongest correlation was between steps per day and the Patient-Reported Outcomes Measurement Information System physical function scoring system. In addition, researchers found that patients' emoji responses were significantly associated with standard patient-reported outcomes.

"While further research is needed to validate the use of wearable activity monitors in cancer care, we believe this technology has the potential to improve the way we care for patients," says Dr. Thompson. "In the future, it may be possible to monitor patient symptoms and communicate with [patients](#) between appointments via wearable technology."

Provided by Mayo Clinic

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