Misinterpreting Smartwatch Readings - A New Childhood Morbidity

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BACKGROUND

Smartwatches are increasingly being used by children and adolescents.[1] This has resulted in an increase in healthcare presentations triggered by concerns from smartwatch heart rate readings or alerts,[2] the latter based on adult algorithms.[3] Subsequently, 'smartwatch morbidity' is becoming a new childhood entity, where concerns about cardiac or other abnormalities arise from smartwatch recorded cardiac indices.[4]

AIM

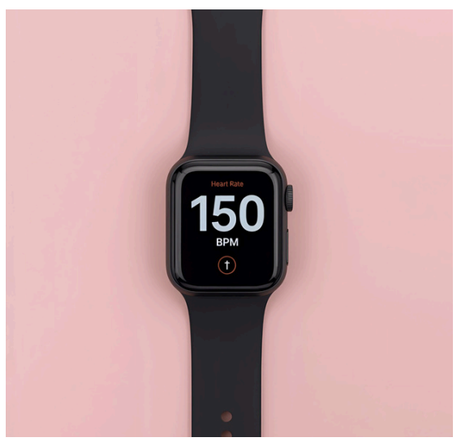
To highlight the main concerns experienced in childhood from smartwatches resulting in clinical referrals to a cardiologist.

METHODS

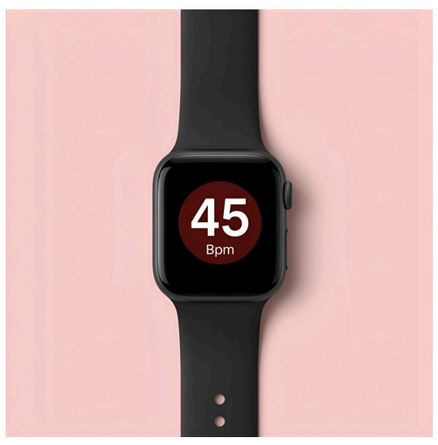
To illustrate the common presentations arising from the usage of smartwatches, composite vignettes were drawn up of patients seen by a paediatric cardiologist having been referred by their general practitioners or paediatricians.

RESULTS

Four scenarios are described which represent the main smartwatch presenting concerns:

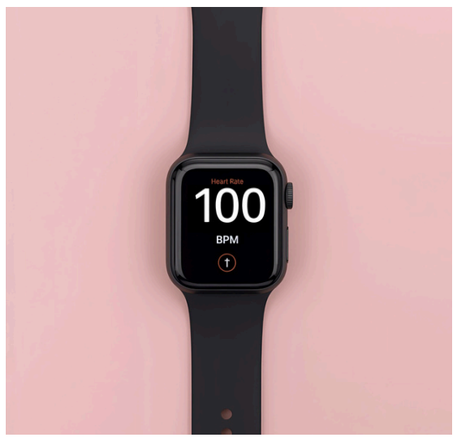


High heart rate
?arrhythmia



Low heart rate
?heart 'stopping'

Variable heart rate
?'abnormal' heart



Misinterpreted
fast heart rate

All resulted in further investigations and the need of additional reassurance.

CONCLUSION

Smartwatch usage is widespread. Misinterpretation of the readings, further exacerbated by inappropriate alerts based on adult algorithms, has led to increasing concern resulting in medical review and investigation. It remains unclear as to who should take responsibility to educate those who purchase and wear a commercial product which may provide medical information, as well as who should be liable for information that may be misinterpreted leading to anxiety on the part of the patients and their families.

REFERENCES

1. Masoumian Hosseini M, Masoumian Hosseini ST, Qayumi K, Hosseinzadeh S, Sajadi Tabar SS. Smartwatches in healthcare medicine: assistance and monitoring; a scoping review. BMC Med Inform Decis Mak. 2023;23(1):248.
2. Dechert BE, LaPage MJ. When Do Smartwatch Heart Rate Concerns in Children Indicate Arrhythmia? J Pediatr. 2023;263:113717.
3. Nash D, Shah MJ, Shehab O, Jones AL, Iyer R, Vetter V, Janson C. "But for the blind spot": Accuracy and diagnostic performance of smart watch cardiac features in pediatric patients. Heart Rhythm. 2024;21(5):581-9
4. Lim RS, Menahem S. Smartwatches in childhood: a mixed blessing? - a scoping review. Transl Pediatr. 2025 Aug 31;14(8):2001-2008. doi: 10.21037/tp-2025-301.

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