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A self-monitoring mobile health app is superior to lifestyle coaching and minimal intervention in reducing aspartate aminotransferase in MASLD patients: a randomised controlled trial

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Background and aims: To reduce the process of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD), new guidance methods, such as lifestyle coaching and mobile health (m-health), should be investigated. Therefore, we studied the outcome of these guidance methods on steatosis, steatohepatitis and fibrosis in MASLD patients.
Method: In a monocentric, 12-month, randomised controlled trial, participants were randomised into three arms: (1) minimal intervention therapy (MIT), (2) lifestyle coaching, and (3) m-health (Happi app) with real time diet, based on image recognition, and exercise self-monitoring. The outcome on steatosis, steatohepatitis, and fibrosis were measured using the controlled-attenuation parameter (CAP^{TM}), hepatic steatosis index (HSI); aspartate transaminase (AST), Fibroscan-AST (FAST) and vibration-controlled transient elastography (VCTE^{TM}).
Results: The guidance by Happi app (n = 98) was superior to MIT (n = 102) and coaching (n = 97) with respect to reduction of the mean serum AST levels (−2.8 U/l, 95% CI [−5.1;−0.6], p = 0.014) and also caused a small but significant decrease in the FAST score (−0.03, 95% CI [−0.05;−0.02], p = 0.018). In addition, m-health induced, similar to coaching and MIT, a significant reduction in steatosis over the 12-month study period, measured by CAP^{TM} (-22 dB/m, 95% CI [−35.8; −8.1], p = 0.002), as well as by HSI (−1.1, 95% CI [−1.8;−0.4], p = 0.002) but no significant change in fibrosis as measured by VCTE^{T}M.
Conclusion: This well-documented study shows that m-health has a more pronounced effect on steatohepatitis-related features than coaching or the MIT. M-health reduces liver steatosis to the same extent as MIT or coaching, but does not improve liver stiffness after one year of intervention. M-health guidance is hence a useful and potentially superior tool to conventional care and should be preferred in MASLD management, being it as a stand-alone approach or to complement anti-MASLD therapy.