1.
Liu, Wanqing. "Pill Box for Adult Daily Taking Medicines." (2023).

This study details the design and functionality of an emotionally considerate pill box for adults with chronic illnesses, drawing upon Norman's emotional design framework to enhance both user experience and adherence. The bamboo-shaped pill box comprises a timer and seven magnetically attached compartments. At the designated medication time, an LED light and buzzer alert the user, and the relevant compartment detaches to prompt intake. The app complements the box by allowing users to manage reminders, track usage, and adjust settings. Findings suggest that aesthetically pleasing, culturally resonant designs may reduce stigma, support mental health, and foster positive perceptions around daily medication routines, particularly among younger adults.

2.
Shannon, Evan Michael, Stephanie K. Mueller, and Jeffrey L. Schnipper. "Patient, Caregiver, and Clinician Experience with a Technologically Enabled Pillbox: A Qualitative Study." *ACI Open* 7.02 (2023): e61-e70.

This study explored the design and user experiences with a smart pillbox intervention aimed at improving medication adherence for patients after hospital discharge. Using the Systems Engineering Initiative for Patient Safety (SEIPS) framework, the research team identified key barriers and facilitators to the pillbox's implementation. Design elements included features for medication administration reminders through audible and visual alerts, and a secure online adherence tracking accessible by clinicians. Findings highlighted challenges like setup issues at discharge, connectivity problems, and alarm sensitivities, while facilitators included ease of use, family support, and clinician engagement. The study underscores the importance of refining training and discharge workflows to improve user experience and device effectiveness.

3.
Du, Xinyang, et al. "Research of Intelligent Product Design for the Aged: The Case of Pill Box for the Elderly." *International Conference on Human-Computer Interaction*. Cham: Springer Nature Switzerland, 2024.

This study examines the design of a smart pill box tailored for elderly users, emphasizing user-centered, inclusive, and age-appropriate technological design. The pill box features assistive functions that support daily medication routines, considering factors such as cognitive load and ease of interaction. Findings from usability testing indicate that elderly users benefit significantly from accessible interfaces, simplified interactions, and supportive feedback mechanisms within the device. The research underscores the need for designers to focus on age-specific requirements, particularly regarding accessibility and usability, to enhance medication adherence and reduce user error.

4.
Najeeb, PK Nijiya Jabin, et al. "Pill care-the smart pill box with remind, authenticate and confirmation function." 2018 International Conference on Emerging Trends and Innovations In Engineering And Technological Research (ICETIETR). IEEE, 2018.

This study presents the "Pill Care" smart pill box, designed to address medication adherence challenges by integrating reminder, authentication, and confirmation functionalities through IoT. The device includes four compartments for different medications and is managed via interconnected mobile apps for patients, caretakers, doctors, and pharmacists. It provides visual and audio cues to remind patients of their dosing schedule, while authentication features track when and by whom the box is accessed, reducing misuse or overdosing risks. Findings indicate that this approach not only helps patients adhere to prescribed schedules but also supports caregivers by enabling real-time monitoring of medication intake and the need for refills, enhancing both safety and convenience.

5.
Minaam, Diaa Salama Abdul, and Mohamed Abd-ELfattah. "Smart drugs: Improving healthcare using smart pill box for medicine reminder and monitoring system." *Future Computing and Informatics Journal* 3.2 (2018): 443-456.

This study introduces a smart pill box system designed to improve medication adherence for elderly patients through IoT integration. The device includes nine pill compartments and operates in two modes: Normal mode, which activates reminders through audio and visual alerts when medication is due, and Management mode, which facilitates remote configuration of medication schedules via a mobile app. The pill box's design emphasizes ease of use, with an Arduino-controlled dispensing mechanism ensuring only one pill is released at a time. Testing confirmed the system's reliable connectivity and timely alerts. This approach aims to enhance patient independence while supporting caregivers through real-time adherence tracking and alerts.

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