Patients' perceptions and preferences in relation to 3D printed medicines

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Background Three-dimensional printing of medicines (3DP) is a new technique being developed within pharmaceutical sciences. The interest in 3DP is partly due to the possibilities of personalized medicine that easily can be adjusted to fit patients? preferences. How patients react to the new possibilites is however uncertain.
Purpose The aim of the project was to investigate patients' perceptions and preferences of placebo 3D-printed solid dosage forms, and their acceptability of patient-designed medicine.
Method 3D-printed placebo solid dosage forms were presented for eight polypharmacy patients, and their views were studied through repeated semi-structured interviews. The interview guide consisted of five central topics: Shapes, colors, embossing, polypills and general perceptions of the possibility to design their own medicine. At the repeat interviews, medicine designed by the individual patient at the first interviews was presented and discussed. The interviews were analyzed using thematic coding.
Findings In total 15 interviews were conducted. Perception of shapes: Despite that the patients seemed to have various subjective perceptions and preferences for 3D-printed medicine, most of them believed it was important that medicine was either easy to swallow, recognize, handle and/or remember. Preferences of shapes and colors: Patients tended to prefer shapes similar to conventional medicine such as a heart and almond shape. Different colors and shapes were perceived as help to recognize and remember the different types of medicine. 3D-printed solid dosage forms with different embossing designs were generally perceived as irrelevant, but designs that indicated the time of administration with descriptive symbols seemed to be useful. Perception of polypills: Patients? perception seemed to be that co mbining medicine in a single dosage form could be complicated if medicines occasionally were adjusted. However, the opportunity to reduce large quantities of medicine to only a few tablets seemed to outweigh the potential limitations.
Conclusion The results indicate that those who trusted the technology behind 3D-printed medicine and found the variously designed solid dosage forms appealing and beneficial, would also be willing to use patient designed medicine in the future.