

## INTRODUCTION

Studies about cannabis dosage forms, with the inclusion of perspectives of users, lead to understanding of medicinal cannabis better.

## AIMS

To review studies focusing on medicinal cannabis dosage forms and opinions related to medicinal cannabis dosage forms.

## METHOD

➤ A comprehensive systematic review was conducted between February and March 2020, to identify studies published in the last 10 years about medicinal cannabis dosage forms and opinions of medicinal cannabis users about cannabis dosage forms (Table 1).

➤ HyDi, a tool offered by the University of Malta with access to different databases, was used for the search.

Table 1: Criteria used for review

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> <li>English language</li> <li>Peer-reviewed journals</li> <li>Medicinal or recreational cannabis users or volunteers accepted to participate in the study</li> <li>One or more medicinal cannabis dosage forms</li> <li>Opinions of patients</li> </ul>	<ul style="list-style-type: none"> <li>Studies do not include any mode of cannabis administration</li> <li>Surveys that do not assess preferences related to cannabis dosage forms</li> <li>Surveys involving participants other than cannabis users or patients</li> </ul>

## RESULTS

- Eighty-nine articles were related to medicinal cannabis dosage forms (Table 2) and 10 articles were based on opinions about cannabis dosage forms (Table 3).
- The majority of the studies (n=97) were performed in a single country, more than half (n=61) in the USA.
- Participants were recreational cannabis users (n=66), healthy volunteers (n=20), medicinal cannabis users (n=10) or patients (n=3).
- Studies included one administration form (n=62) of cannabis mainly the smoked form (n=32), followed by the oral form (n=15).
- Some studies compared two dosage forms (n=25) such as smoked versus oral (n=9) or vaped (n=5), edible (n=3), oral versus oro-mucosal (n=5).
- Studies with multiple dosage forms (n=12) involved variety of forms including smoked, vaped, inhaled, oral, sublingual, edible and rectal forms.
- Scope in the studies were pharmacodynamics (n=41), pharmacokinetics (n=32), use patterns and opinions on medicinal cannabis dosage forms (n=26).

## CONCLUSION

Various studies were conducted about medicinal cannabis dosage forms. The majority of studies evaluated smoked and oral forms of cannabis. Medicinal cannabis can be administered using a variety of methods. It is essential to evaluate different dosage forms used to administer cannabis to have a better understanding of the pharmacokinetics and pharmacodynamics of cannabinoids. Only a few studies included the perspective of medicinal cannabis users about cannabis dosage forms. There is still need for more studies related to patient perception.

Table 2: Systematic review about medicinal cannabis dosage forms (N=89)

Number of administration forms	Cannabis dosage form	Number of Studies	Country
1	Smoked (n=30) Oral (n=15) Oro-mucosal (n=5) Edible (n=4) Vaporised (n=2) Systemic (n=2) Topical (n=1)	59	Australia, Canada, China, France, Germany, Italy, New Zealand, Poland, Switzerland, The Netherlands, UK, USA
2	Smoked-oral (n=9) Oral-orumucosal (n=5) Smoked-vaped (n=4) Smoked-edible (n=3) Oral-oral (n=2) Oral-systemic (n=1)	24	Canada, Israel, Switzerland, UK, USA
3	Smoked-vaped-oral (n=4) Smoked-vaped-edible (n=2)	6	UK, USA

Table 3: Systematic review about opinions related to medicinal cannabis dosage forms (N=10)

Number of administration forms	Cannabis dosage form	Number of Studies	Country
1	Smoked (n=2) Oro-mucosal (n=1)	3	Germany, USA and Multiple Countries including USA, UK
2	Smoked-vaped (n=1)	1	USA
3-5	Smoked-vaped-edible (n=2) Smoked-vaped-edible-topical (n=1) Smoked-vaped-edible-oral-orumucosal (n=1)	4	USA
6-8	Smoked-vaped-edible-oral-orumucosal-topical (n=1) Oral tablets-capsules-sublingual drop-sublingual spray-inhaled-enteral feeding liquid-suppository-topical (n=1)	2	Australia and 31 Countries including USA, Germany and France