**BACKGROUND**

Patient empowerment is a key issue in healthcare demanding (i) awareness of patient's role, (ii) acquisition of knowledge, (iii) patient's skill, and (iv) a suitable (tehnological) environment.

The ArgoRec Recommender System (RS) aims at delivering personalised healthcare to Complex Chronic Patients (CCP) by leveraging argumentation to enable justifiable and personalised recommendations.

Argumentation is interaction through dialogue: making claims, attacking others’ ones, and providing premises supporting own ones, with the goal of winning a debate.

**SOLUTION**

We exploit computational argumentation -- that is, automatic reasoning over arguments graphs – to empower RS along two dimensions:

- **explanatory power**, by enabling ArgoRec to describe the “why & how” a specific recommendation has been given
- **user experience**, by interacting with patients through natural language sentences generation

In ArgoRec recommendations are interpreted as arguments:
- claims are recommendation goals (the message)
- premises are adherence to prescriptions (automatically computed)
- support relations strength depends on many factors, i.e. time windows for computing adherence profiles
- attack relations are due to conflicting recommendations based. i.e., on different

**METHOD**

ArgoRec can motivate / explain reasons for recommendations and provide to clinicians insights on decision making by navigating the argumentation graph while exploiting NLP and Argumentation Mining.

For doing so, ArgoRec works as follows:

- a prescription fulfillment notification is received
- it is checked against its prescription to compute adherence
- arguments are generated and added to the argumentation graph
- strength of relations are updated
- recommendations are generated accordingly

**KEY BENEFITS & CHALLENGES**

- ArgoRec reduces fear of algocracy through explanations and justifications
- ArgoRec enables autonomous learning through associated rules discovery and statistical relational learning
- ArgoRec improves patients’ user experience through argumentation-based natural language generation

*...but, research in computational argumentation is mostly theoretical
*...social and organisational factors should be taken into account besides technological ones for promoting adoption

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