Erasmus School of Health Policy & Management

Erasmus Choice Modelling Centre

ERASMUS CENTRE FOR HEALTH ECONOMICS ROTTERDAM EsCHER

How untruthfulness in self-reported medication adherence influences treatment preferences: a discrete choice experiment

Carina Oedingen

On behalf of R. van Gestel, S. P. I. Huls, G. Granic, E. W. de Bekker-Grob & J. Veldwijk

ISPOR Europe 2023

Erasmus University Rotterdam

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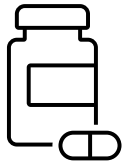
Self-reported data

- Self-reports are one of the most popular survey tool to obtain information about respondents (efficient and cost-effective)
- But respondents may not respond truthfully either because
  - they cannot remember (recall bias) or
  - they would like to make them 'look good' (social desirability bias)

➢ Respondents may misreport their true behavior or preferences

➢ Untruthfulness is for example a common problem when measuring medication adherence



Chan et al. 2009; Ingersoll & Cohen 2008; Tourangeau & Yan 2007; Trau et al. 2013

Study aims

Impact of truth-inducing incentives on self-reported medication adherence, and subsequently on stated treatment choices

i. We implemented a novel mechanism, choice-matching, to induce more truthfulness in self-reports

ii. We investigated whether induced truthful self-reported medication adherence can explain heterogeneity in patients' treatment preference

Cvitanić et al. 2019

Case study:

Medication adherence in patients with Multiple Sclerosis (MS)

- MS is a chronic immune-mediated disease
- Mostly affecting young adults, mainly women
- Treatments can be either injected, taken orally, via infusion or implants
- Current treatments cannot cure MS, but may reduce disease progression
- Suboptimal adherence showing an increase of non-adherence and medication discontinuation over time (between 53 and 90 %)

Brownlee et al. 2017; Duquette et al. 2019; Engmann et al. 2021; Mardan et al. 2021; Nicholas et al. 2020

Study design

- Data was collected among MS-patients in the Netherlands, France and United Kingdom
- Half of the sample was randomized to receive ‘choice-matching’

Standard group

Self-reported medication adherence

Choice-matching group

Self-reported medication adherence
+ Guess about others’ medication adherence
+ Financial incentive

Visser et al. 2021

Data collection: Preferences and self-reports

Discrete choice experiment (DCE)*

- MS-patient preferences for treatment characteristics
- Trade-offs regarding treatment characteristics
- Used attributes:
  - risk of relapse
  - reducing disease progression
  - risk of side effects
  - *mode of administration (pills, injections and implants)*

Self-reported medication adherence

- 4 different types of non-adherence:
  - been careless
  - forgotten to take
  - taken the medication less then prescribed
  - stopped using the medication
- Using a five-point Likert scale (from 'Most of the time' to 'Never')

*Visser et al. 2021; Brooks et al. 1994; Erickson et al. 2001

Data collection

Only for the choice-matching group

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Guess about others' medication adherence

- Choice-matching reveals true level of medication adherence
- Respondents predict how many of ten other respondents have chosen to be always adherent to the self-reported medication adherence questions
- It financially rewards each respondent by the accuracy of his/her guess

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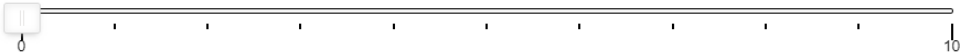
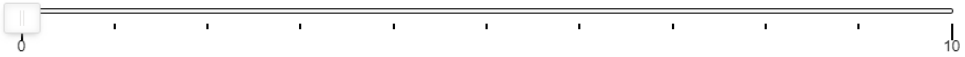
Data collection: Choice-matching

Only for the choice-matching group

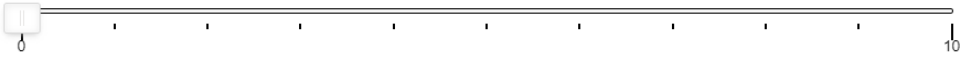
Been careless about taking your medication?



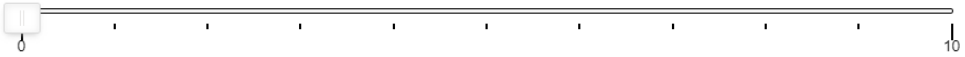
Forgotten to take your medication?



Taken your medication less than your doctor prescribed because you felt better?



Stopped using your medication because you felt better?



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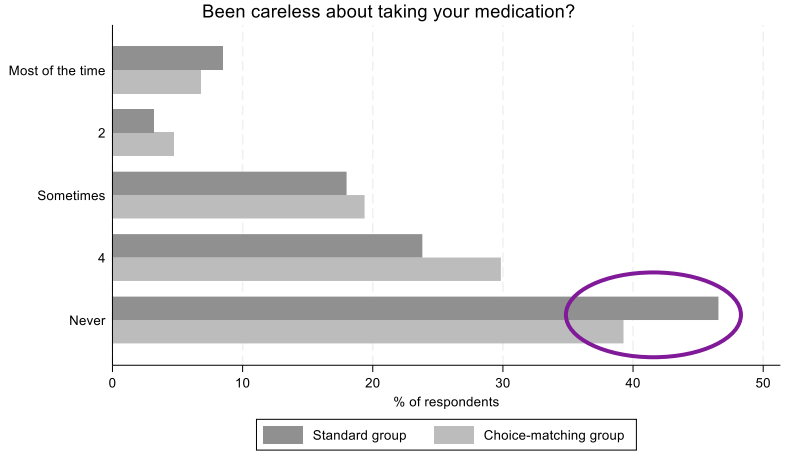
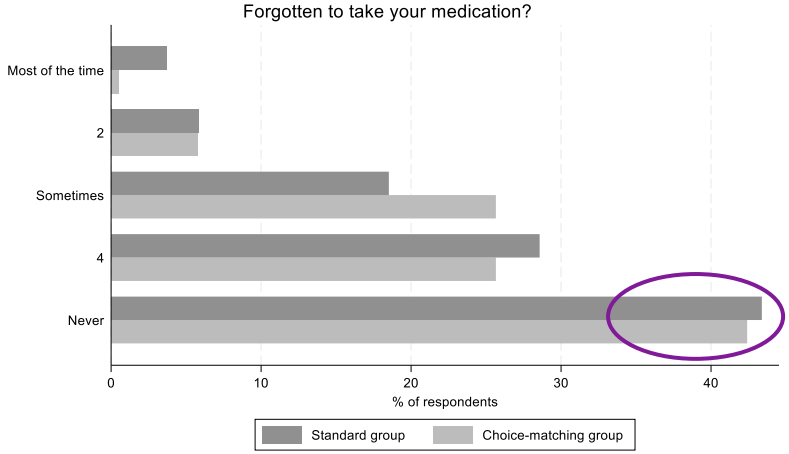
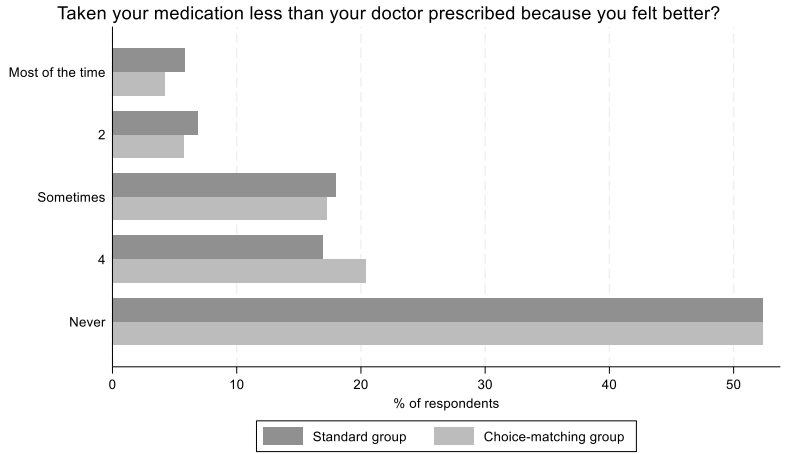
Results: Sample characteristics

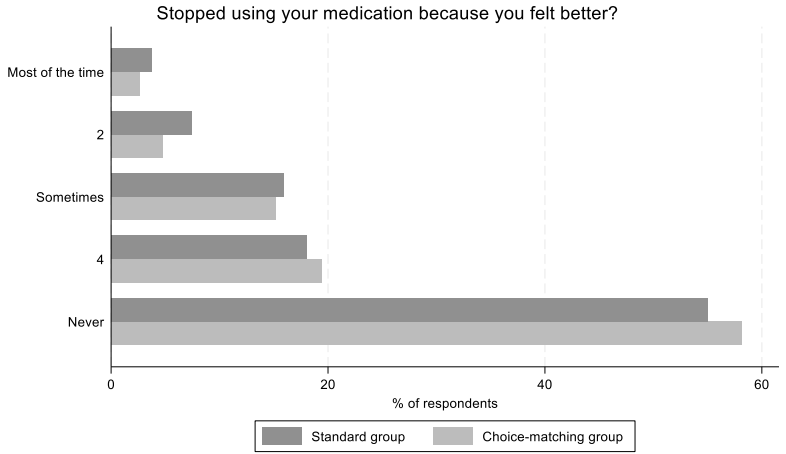
Variables		Standard group (n=189)	Choice-matching group (n=191)	p-value
Age in years, mean (SD)		42 (±12)	40 (±12)	0.012**
Gender, n (%)	Female	132 (69.84)	132 (69.11)	0.877
Nationality, n (%)	Dutch	56 (29.63)	59 (30.89)	0.963
	French	63 (33.33)	62 (32.46)	
	British	70 (37.04)	70 (36.65)	
Education, n (%)	Higher (e.g., University)	97 (51.32)	95 (49.74)	0.245
Age diagnosed with MS in years, means (SD)		31 (±12)	29 (±12)	0.100
Disease progression, n (%)	Clinically isolated syndrome	25 (13.23)	17 (8.90)	0.235
	Relapsing-remitting MS	100 (52.91)	95 (49.74)	
	Primary progressive MS	36 (19.05)	36 (18.85)	
	Secondary progressive MS	21 (11.11)	28 (14.66)	
Current mobility, n (%)	Able to walk	93 (49.211)	94 (49.21)	0.867
	Able to walk with aid	90 (47.62)	89 (46.60)	
	Restricted to bed	6 (3.17)	8 (4.19)	

Results: Self-reported own adherence









Results: Preference heterogeneity

Most important attributes were reduced risk of relapse/disease progression
But: biggest standard deviations regarding the MS-treatments

Interaction effects (ref: Injecting treatment 3 times per week)	Standard group	Choice-matching group
Own adherence* Injecting treatment once a week	⇧	⇩
Own adherence* Taking 1 pill per day orally	⬆	⇧
Own adherence* Taking 2 pills per day orally	⇧	⬇
Own adherence* Replacing the implant once a year	⇧	⇧
Own adherence* Replacing the implant every 3 years	⇧	⇧

Filled arrows are significant.

Discussion & Conclusion

- Choice-matching encouraged patients to report their true medication adherence
- Patients who reported the truth due to the financial incentive set by the choice-matching mechanism prefer *injections*, while patients from the standard group preferring to choose *oral routes of administration*

- The results can be used for
  - ➢ a better understanding of preference heterogeneity
  - ➢ a better (cost)effectiveness assessments of treatments and
  - ➢ shared decision-making of treatments between patients and physicians that also fits the patients' true treatment preferences

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Thanks for your attention! Questions?

Dr. Carina Oedingen

Postdoctoral Researcher

oedingen@eshpm.eur.nl

Literature

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