



CORC Forum 2020

Unpacking the associations between case-mix and resource use

Preliminary findings

*Julian Edbrooke-Childs, Anisatu Rashid,
Ben Ritchie, & Jessica Deighton*

ACKNOWLEDGEMENT

MQ, for funding the work through the Mental
Health Data Science Programme
NHS Digital, for supplying data through the Data
Access Request Service

The preliminary results in this presentation are
those of the authors and do not necessarily reflect
those of MQ or NHS Digital

Need for the research

When treatment is in line with a service user's needs and preferences, we know that they are more likely to complete treatment and get better quicker (Lindhiem, Bennett, Trentacosta, & McLear, 2014)

There is a call for mental health services to be tailored to meet the specific needs of their users (Bickman et al. 2016; NHS England and the Department of Health, 2015)

There is a need for better information on different patterns of resource use and treatment outcome by service users' different characteristics and needs

Identify how different young people are engaging with services and support justifications for resources and budgets

Case mix: How can we predict resource use and treatment outcome for different service users?



An estimated 32 different classifications systems for community mental health services (Tran et al., 2019)

(Adult) Mental Health Clustering Tool for identifying different levels input: “global description of a group of people with similar characteristics as identified from a holistic assessment and then rated” (NHSE & NHSI, 2019)

Case mix: How can we predict resource use and treatment outcome for different service users?



Higher levels of service use in adults: comorbidity; personality disorder; age; neurotic symptoms; female gender; divorced, separated or widowed; minority ethnic group; high previous service use; or impaired activities of daily living (Twomey et al., 2015)

Higher levels of service use in young adults: prior service contact, gay or bisexual, female, or White ethnic group (Li et al., 2016)

Reid et al 2019

5,632 young people

5-13 years

5 services in Canada
between 2004 and
2010

- 33% had 0 episodes
- 54% 1 episode
- 14% had two or more episodes of care

Average duration of 1.1 years – *there was a lot of difference*

1. **Minimal:** mainly 0 or 1 episode with duration .4 years
 - Older than some groups
 - Lower externalizing, child impairment, and family burden and lower internalizing than some groups
2. **Acute:** mainly 1 episode with a duration of .8 years
 - Lower externalizing than some groups
3. **Brief episodic:** mainly 1 or 2 or more episodes with a duration of 3.5 years
 - Younger
4. **Intensive:** mainly 1 or 2 or more episodes with a duration of 1.8 years
5. **Ongoing/ intensive-episodic:** between 1 and 2 or more episodes with a duration of 3.3 years
 - Higher child impairment and externalizing than some groups

Martin et al 2020

4,573 young people

39% 10-14 years
and 37% 15-9 years

11 services in
England between
2012 and 2014

Average of 4.96 appointments, range 0-101 – *there was a lot of difference*

7-20% service-level variation

18 needs-based groups using a conceptual classification

Some groups were likely to attend approximately twice as many appointment as the “Signposting and Self-Management” group:

- Depression
- Self-harm
- Co-Occurring Behavioural and Emotional Difficulties
- Co-Occurring Emotional Difficulties
- Eating Disorder
- Psychosis



Aims

Research questions

Do baseline and clinical characteristics and service-level variation predict service use (number of care contacts)?

- How does number of care contacts vary between services?
- Are demographic factors associated with number of care contacts?
- Are clinical characteristics associated with number of care contacts?

Methods

Ethics and approvals

UCL Research Ethics Committee approval (12689/001) and Data Access Request Service (DARS-NIC-140981-R5N6Z)

Data extractions

‘Community activity data package’ extracted from Mental Health Services Data Set by NHS Digital (years 2016-17 and 2017-18)

Data analysis

Multilevel regressions looking at associations controlling for other variables and taking into account nested structure of data (episodes within services)

For ease of interpretation, presenting simple descriptive comparisons that do not control for other variable and nesting of episodes within services



Data Preparation

Received MHSDS data containing care contacts from 1/4/2016 to 31/3/2018

50,242,747 care contacts (relating to 5,350,642 referrals)

Filtered for care contacts where age was 0-27 years

14,492,805 care contacts (relating to 1,666,832 referrals)

Constructed episodes from care contacts and anonymised MHSDS person IDs

A period of service use consisting of at least two care contacts and less than 180 days between care contacts (excl. SMS, email, unattended) (adapted from Reid et al. 2015)

459,514 episodes



Data Preparation

- **Filtered for episodes where age at episode start was 0-25 years**
424,940 episodes
- **Filtered for episodes with data on difficulties from Current View Tool presenting problems or ICD-10 diagnosis**
50,983 episodes
- **Filtered for closed episodes**
30,113 episodes
- **Filtered for episodes with complete data and >1 episode per service**
27,979 episodes



N = 27,979 episodes

71 services



Demographics	n	%
<i>Deprivation quintile (IDACI)</i>		
1 (least deprived 20%)	3,995	14
2	3,919	14
3	4,531	16
4	5,822	21
5 (most deprived 20%)	9,712	35
Age (M, SD, range)	13, 5, 0-25	
Female	13,894	50
Male	14,085	50



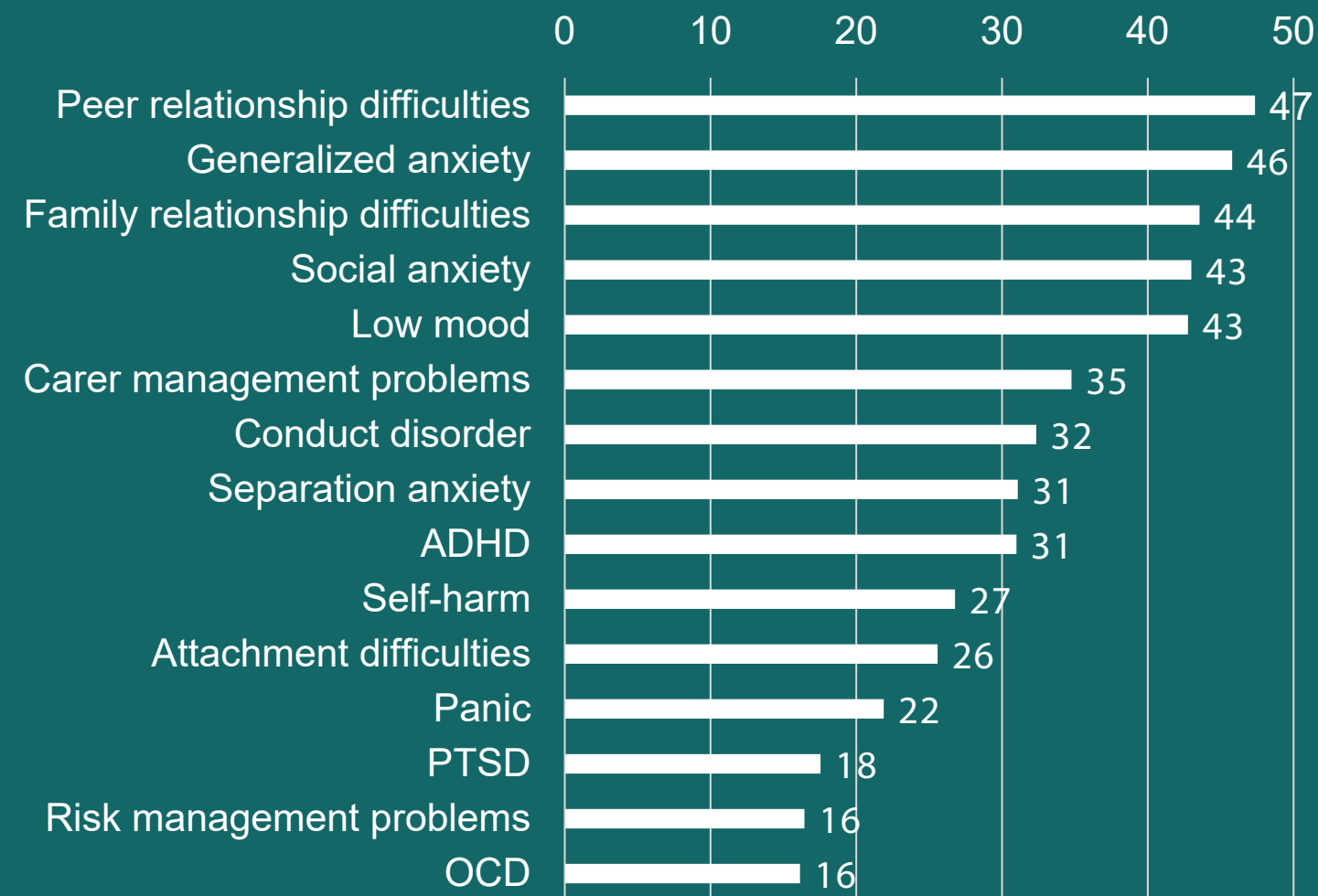
Referral source	n	%
Primary care	10,550	38
Self-referral	1,843	7
Education	2,127	8
Social care/ justice	1,221	4
Child health	1,120	4
A&E	3,293	12
Mental Health	2,009	7
Other	4,173	15
Not reported	1,643	6



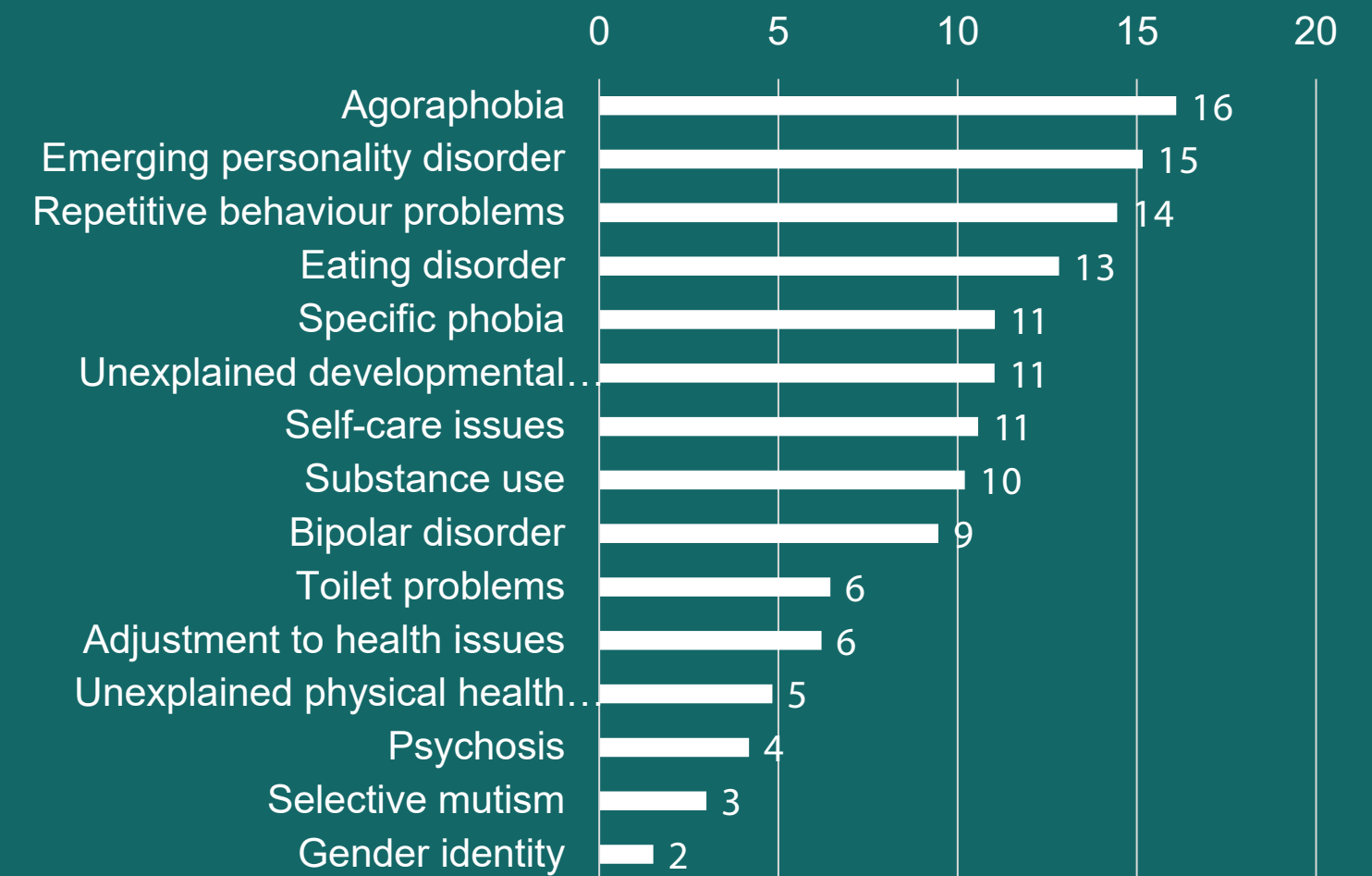
Ethnicity	n	%
Bangladeshi	79	0
Black African	273	1
Black Caribbean	192	1
Chinese	58	0
Indian	131	0
Irish	56	0
Other	857	3
Other Asian	212	1
Other Black	178	1
Other Mixed-race	316	1
Other White	748	3
Pakistani	253	1
Not reported/ known	4,533	16
White and Asian	185	1
White and Black African	115	0
White and Black Caribbean	299	1
White British	19,494	70



% presence vs. absence of difficulties from Current View Tool & ICD-10 codes



**Most frequent 15
difficulties**



**Least frequent 15
difficulties**



Conclusions

Administrative data and differences in coding

A lot of difference

Emerging personality disorder, self-care difficulties, eating disorder, substance use and psychosis

What about multiple difficulties and treatment outcomes?

References

Bickman, L., Lyon, A. R., & Wolpert, M. (2016). Achieving Precision Mental Health through Effective Assessment, Monitoring, and Feedback Processes. *Administration and Policy in Mental Health and Mental Health Services Research*, 43(3), 271–276.

Li, W., Dorstyn, D., & Denson, L. (2016). Predictors of Mental Health Service Use by Young Adults: A Systematic Review, *Psychiatric Services*, 67(9), 946-956.

Lindhiem, O., Bennett, C.B., Trentacosta, C.J., & McLearn, C. (2014) Client preferences affect treatment satisfaction, completion, and clinical outcome: A meta-analysis. *Clinical Psychology Review*, 34(6), 506-17.

Martin, P., Davies, R., Macdougall, A., Ritchie, B., Vostanis, P., Whale, A., & Wolpert, M. (2020). Developing a case mix classification for child and adolescent mental health services: the influence of presenting problems, complexity factors and service providers on number of appointments*, *Journal of Mental Health*, 29(4), 431-438, doi:10.1080/09638237.2017.1370631

NHS England and the Department of Health (2015). *Future in Mind*. London: NHS England and the Department of Health

NHS England & NHS Improvement (2019). 2019/20 National Tariff Payment System – A consultation notice: Annex DtE Technical guidance for mental health clusters. London: NHSE & NHSI.

Reid, G., Stewart, S. L., Zaric, G. S., Carter, J. R., Neufeld, R. W. J., Tobon, J. I., Barwick, M., & Vingilis, E. R. (2015). Defining Episodes of Care in Children's Mental Health Using Administrative Data. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(6), 737–747.

Reid, G.J., Stewart, S.L., Barwick, M. et al. (2019). Predicting patterns of service utilization within children's mental health agencies, *BMC Health Serv Res*, 19, 993. doi:<https://doi.org/10.1186/s12913-019-4842-2>

Tran, N., Poss, J.W., Perlman, C., & Hirdes, J.P. (2019) Case-Mix Classification for Mental Health Care in Community Settings: A Scoping Review. *Health Services Insights*. doi:10.1177/1178632919862248

Twomey, C.D., Baldwin, D.S., Hopfe, M., et al. (2015). A systematic review of the predictors of health service utilisation by adults with mental disorders in the UK, *BMJ Open*, 5, e007575. doi:10.1136/bmjopen-2015-007575



CORC ADDRESS

4-8 Rodney Street,
London N1 9JH

PHONE NUMBER

+44 (0)20 7443 2225

EMAIL ADDRESS

corc@annafreud.org
julian.edbrooke-
childs@annafreud.org

TWITTER

@CORCcentral
@EBPUnit

CONTACT INFORMATION

