

PSYPAG

Psychology Postgraduate Affairs Group

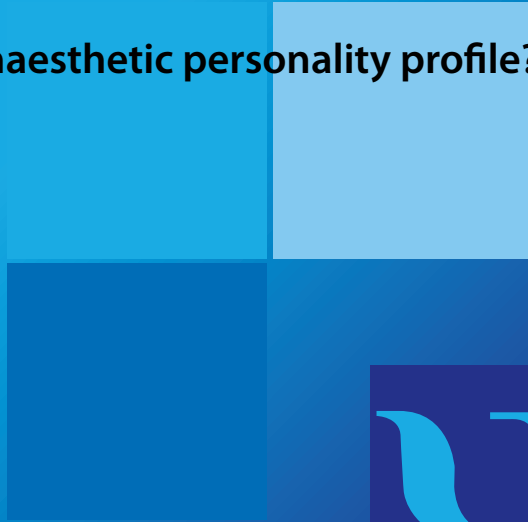
Quarterly

Issue 111 June 2019

Guest Author: Conducting research in a secure mental health setting

To vaccinate or not to vaccinate: Child influenza vaccination in England

Is there a synaesthetic personality profile?



Also in this issue:

Cognition and religiosity: Who is most likely to believe?

Improve your statistical inferences with this one neat trick: A brief review of the Improving Your Statistical Inferences MOOC



**The British
Psychological Society**

Developmental Psychology Section

Developmental Psychology Section

Promoting the scientific study of the cognitive, emotional, social, perceptual, and biological changes in humans that occur from before birth, through infancy, childhood, adolescence and into adulthood.

Come and join us at CogDev2019

We are holding our annual conference in collaboration with the Cognitive Psychology Section this year. We will be in Stoke-on-Trent from 4–6 September. Keynotes include:

- Kathy Hirsh-Pasek;
- Nelson Cowan;
- Simon Baron-Cohen.

Postgraduate bursaries available and pre-conference workshops

For more details see our conference website: <http://tiny.cc/CogDev2019>

Join the Developmental Psychology Section to receive:

- Access to funding, awards and bursaries.
- Reduced registration rates to our Annual Conference.
- Invitation to attend our preconference events.
- Full access to the Section website and our twice yearly membership newsletter, *Developmental Forum*.
- News and updates via the Section's e-mail list.

Find out more at www.bps.org.uk/dps

Editorial

Alex Lloyd

IT BRINGS ME great pleasure to introduce the June 2019 edition of the *PsyPAG Quarterly*! We have a range of fantastic articles in this entry that truly reflect the full breadth of exciting research being conducted by postgraduate Psychologists across the UK. We have a range of articles to share in this issue including empirical research, discussion pieces and training school reviews. We are also running our second ever ‘Meet the Readers’ section, where we introduce a number of UK postgraduates and their current research projects. With just a month to go until the PsyPAG Annual Conference 2019, this is a great chance to get a glimpse of some of the ideas that will be shared during the event. I hope you will enjoy reading these articles just as much as we have!

We begin our issue with a fascinating article written by guest authors Ella Hancock-Johnson and Vienna Rose on the topic of conducting research in a secure mental health setting. They detail some of the background as to why research in these facilities is so important, as well as the practicalities of carrying out empirical work. As someone who works alongside stakeholders for their own research, I found this piece to have a number of insights about managing barriers to conducting research that can be applied with both clinical and non-clinical populations. We then have an article by Gemini Katwa and Stacey Bedwell, who conducted research examining the intensity of childhood trauma and how this impacts decision-making styles in adulthood. This piece is particularly timely given the recent focus on the effects of trauma in the criminal justice system and gives a novel insight into the long-term impact of traumatic events.

These articles are then followed by a number of discussion pieces considering a wide range of topics. Clea Desebrock

provides an interesting overview of the ‘Self-Reference Effect’, which is the use of one’s own name or face to alter behaviour. Clea synthesises historic and modern day examples to demonstrate how this effect has been utilised by various groups, along with a review of the psychological mechanisms that might underpin this effect. Following this, Leor Zmigrod provides a discussion about who is most likely to believe, which considers the profile of individuals more likely to have faith in a religion or deity. Next is Anna Mas-Casadesús who reviews whether there is a personality profile of individuals with synaesthesia, a condition whereby input from one sense can produce an involuntary sensation in another sense. Anna presents a convincing argument that a distinct personality profile does exist amongst synaesthetes and presents direction for future research to examine this further.

In addition, we have a discussion paper by Lydia Hickman, who highlights the importance of assessing alexithymia in psychological research. Alexithymia, or the difficulty identifying or describing one’s emotions, is prevalent across many diagnostic criteria and therefore has the potential to account for differences in a range of psychological paradigms. Rebecca Dyas then discusses the impact of technology and social media on mental health, with particular emphasis on adolescents’ wellbeing. Drawing on her practitioner experience, she argues that consideration of factors associated with social media should be an important consideration in clinical environments. Our final discussion piece, by Louise Smith, reviews the psychological factors underlying child influenza vaccinations in England. With the recent news of anti-vaccination attitudes being discussed in the media, this article presents a timely consideration of this public health issue.

We next have a series of excellent review articles summarising training events and conferences. Darel Cookson shares her experience at the Comparative Analysis of Conspiracy Theories training school which is of great interest to anybody researching in conspiracy theory belief. Oliver Clark gives an overview of a Massive Open Online Course (MOOC) which covers a number of subjects related to statistical inference. This would be a great resource for postgraduates who want to develop their quantitative analysis skills. Finally, we have an article by Angela Medvedeva reviewing the PsyPAG Annual Conference 2018. She gives an overview of the range of talks and activities that were hosted last year in Huddersfield, and is an exciting read with only a month until the 2019 conference! We hope to see many of you at PsyPAG's 34th Annual Conference, which will be hosted at Sheffield Hallam University, 23–26 July.

Thank you to all of the authors who contributed to this brilliant issue of the *Quarterly*. We hope that there will be something that captures the interest of everyone in this issue and are very excited to begin working

on our next issue following the conference. The *Quarterly* Editorial Team are always working to build on the successes of the publication and hope to be able to share some exciting news with you all soon. In the meantime, we would like to invite you to submit your articles to the *Quarterly* as we strive to represent postgraduates from across the country. This can be a great opportunity to share your research with Departments across the country and add a publication to your CV!

We hope that all of our readers enjoy the summer and look forward to seeing many of you at the upcoming conference!

Alex Lloyd

On behalf of the *PsyPAG Quarterly*
Editorial Team

PsyPAG Quarterly

Editorial Team 2018–2019:

Charlotte Scott

Claire Melia

Josie Urquhart

Alex Lloyd

E-mail: quarterly@psypag.co.uk

Twitter: [@PsyPAGQuarterly](https://twitter.com/PsyPAGQuarterly)

Need a reason to write for us?

- Great addition to the CV.
- Engage with the wider academic community.
- Provides experience in the process of publishing (i.e., responding to peer-review etc.).
- Most importantly, it is good fun!

More information can be found on our website (www.psypag.co.uk), or on the back pages of this issue.

Alternatively, e-mail or Tweet us ideas: quarterly@psypag.co.uk / [@PsyPAGQuarterly](https://twitter.com/PsyPAGQuarterly)

We look forward to hearing from you.

Chair's Column

Holly Walton

HELLO and welcome to the June edition of the *PsyPAG Quarterly*. I hope that everyone is having a productive and enjoyable summer so far!

We are now just under a month away from PsyPAG's 34th Annual conference at Sheffield Hallam University and I am delighted to say that it is looking to be another fantastic conference! It will take place on Tuesday 23 July to Friday 26 July 2019. The PsyPAG conference is run by post-graduates for postgraduates. Abstract submission is now unfortunately closed, but conference registration is still open so there is still time to get involved and attend PsyPAG 2019 (<https://store.shu.ac.uk/conferences-and-events/social-sciences-humanities/ssh-conferences/psypag-conference-2019>). I am delighted to announce that our keynotes for this year include: Professor Sir Chris Husbands, Professor Maddy Arden, Dr Emma Norris and Dr Jenny Drabble. As always we will also have a fantastic conference dinner but this year you will also be able to attend 'Skeptics in the pub' on the Psychology of magic by Dr Gustav Kuhn and also a pizza and sports event. We hope to see many of you at Sheffield Hallam University in July 2019! Please follow our conference social media (@PsyPAG2019) for up to date information during the conference.

Our annual awards deadline has now closed and the awards team are busy reading through the applications. We look forward to presentations from our winners at the conference! Thank you to everyone who applied for one of our awards!

Since the last issue, PsyPAG reps have hosted stands at the BPS Annual Conference in Harrogate and also at the BPS research day in London. I hope you found lots of useful information if you managed to speak to our reps at one of these events!

PsyPAG have many funding opportunities for you to apply for. We offer funding

for hosting workshops (<http://www.psypag.co.uk/workshops/>). We also offer bursaries (<http://www.psypag.co.uk/bursaries-2/>). We offer bursaries for attending conferences (international and domestic), workshops and training events, study visits and travel bursaries. Deadlines for workshops and bursaries are in February, June and October each year.

I am delighted to say that Benjamin Butterworth has now taken over as PsyPAG Treasurer. I would like to say a huge thank you to Jemaine Stacey who has been a fantastic treasurer over the last two years. In July, myself (Chair) and Becky Scott (Information officer) will also be stepping down from our positions and we are delighted to announce that Maddi Pownall will be the new Chair and Oliver Clark will be the new Information officer. A huge congratulations to all three of our new core committee members and I am excited to see PsyPAG continue to thrive and grow in the next two years.

If you are interested in joining the PsyPAG committee, please look on our website or at the back of the *PsyPAG Quarterly* for vacancies. For more information on committee positions please contact Cat Talbot (Vice Chair) at vicechair@psypag.co.uk.

Once again, I would like to say a huge thank you to the BPS Research board for their continued support. Similarly, a huge thank you to all our PsyPAG committee members for their dedication and hard work in supporting UK Psychology postgraduates.

If you have any comments or questions, I would love to hear from you. Please get in touch on social media (Twitter/Facebook) or via email. We would also love to meet as many of you as possible at the conference in July!

Holly Walton, PsyPAG Chair

Twitter: @PsyPAG @HollyWalton15

Email: chair@psypag.co.uk

Meet the Readers

We have already had a great response to our call for the new 'Meet the Readers' section. This feature is all about you, the reader. Each issue, we give our readers from across the country the chance to tell us a little bit about themselves and their research to help promote collaboration between postgraduate psychologists. If you would like to be featured in an upcoming issue of the Quarterly, please email quarterly@psypag.co.uk for a short form to fill out! Here are some of our latest submissions from readers.

Madeleine Pownall (Chair-elect)

What is your current research project?

My PhD is investigating the social stereotypes that affect pregnant women in daily life. This work is rooted in social psychology and uses quantitative experimental methodology to explore how explicit activation of certain stereotypes may affect performance, affect, and behaviour in different contexts.

What do you find most exciting about your research?

I am only three months in to my PhD so I am currently in the blissfully naïve, endlessly excited stage of research. One aspect of my work so far that I particularly enjoy is how my research incorporates several different fields, that are not necessarily within psychology. It has links with sociological ideas, ties with healthcare and midwifery, and also some cognitive elements. I find this exciting as it allows me to venture into different territories, of which are both academic and applied.

Eventually in my PhD I hope to look at some of the psychological mechanisms that may be used to prevent or diffuse stereotypes in applied contexts. This is likely to relate to work-place discrimination or implicit bias that could potentially harm pregnant women. I am drawn to research and ideas that have the capacity for real-world application.

Wildcard: How did you become interested in your particular area of research?

I grew up in a house full of females with a Mum who worked as a midwife. Women's health, pregnancy, and body image were always openly discussed throughout my childhood. I would love hearing my Mum talk about her job and found the whole concept of pregnancy fascinating. Throughout my psychology undergraduate degree, I then became interested in the psychology of gender, specifically the relationships women have with their bodies and self-esteem, and how this information is used to determine where women 'fit' in society. These concepts and ideas all lie at the heart of my PhD research.

Correspondence details

Email: M.V.Pownall@leeds.ac.uk

Department: School of Psychology

University: University of Leeds

Other links (Twitter, blog, etc.): [@maddi_pow](#)

Benjamin Butterworth (Treasurer)

What is your current research project?

I'm investigating the relationship between alcohol and memory, and what this means for psychological trauma and PTSD. The aim is to better understand the relationship between alcohol and traumatic memories, explaining why some drinkers are more likely to develop PTSD and worse trauma symptoms. This involves lab experiments where I provide participants with alcohol (!) and observe how it affects their memory. It's a mixed-methods project, so I also interview drinkers about how they believe alcohol affects memory, and how traumatic memories might influence their drinking. Whilst the topic is very sensitive, my research is a lot of fun!

What do you find most exciting about your research?

My participants. Whether I'm conducting interviews or testing in the lab, my participants have a lot to say about alcohol. This can range from funny drinking stories to profound observations, making me re-think my own relationship with alcohol. I also find that my participants enjoy my experiment and really get into it, which is a pleasure to be a part of. They're required to drink a set amount of alcohol whilst solving a Disney princess jigsaw puzzle before a timer runs out. Participants get very competitive, all the while forgetting that they're in an experiment!

Wildcard: What do you like to do outside of your research?

As any postgrad student knows, it's very difficult to switch off and forget about your studies. My PhD is about alcohol and memory, so I can't even go to the pub to forget about my day! I've recently taken up Medieval Longsword fighting in a bid to clear my head. It's completely different from anything I've done before and surprisingly relaxing; if you've ever felt like chopping your keyboard to bits, Longsword might be more effective than a stress ball. Being hit over the head with a sharp piece of metal does remind me of Phineas Gage though...

Correspondence details:

Email: benjamin.butterworth@gcu.ac.uk

Department: Psychology

University: Glasgow Caledonian University

Other links (Twitter, blog, etc.): @memoreasy

Isaac Halstead

What is your current research project?

My current research is focussed on understanding what influences an individual's support for the use of gene editing technology. In particular, whether or not pathogen disgust is a predictor of gene editing opposition. Our belief is that an individual's concerns regarding contamination will result in less support for gene editing, in a similar way to previous research that examined disgust in relation to the use of genetically modified foods.

What do you find most exciting about your research?

I enjoy thinking about evolutionary concepts such as the behavioural immune system – how these evolutionary processes may influence our thoughts and behaviours in ways we rarely consider. While I come from a social psychology background, I do find the ideas suggested by evolutionary psychology to be parsimonious with a variety of social phenomena. Being able to see how this relationship is expressed through a person's values or beliefs is always fascinating.

Wildcard: Who is your psychology hero?

I am a fan of Thomas Nadelhoffer, he does some excellent science grounded in philosophical ideas (his work on free will is a great read). If you want to engage your inner philosopher and scientist simultaneously, then I recommend you give his work a look.

Correspondence details:

Email: Isaac.halstead.2018@live.rhul.ac.uk

Department: Psychology

University: Royal Holloway

Other links (Twitter, blog, etc.): [@IsaacHalstead1](https://twitter.com/IsaacHalstead1)

Guest Authors

Conducting research in a secure mental health setting

Ella Hancock-Johnson & Vienna Rose

Research is a key element in putting the patients at the centre of care provision in secure mental health settings. This Departmental Review provides reflections on conducting research in a secure mental health setting. Key reasons for conducting research, issues and patient perspectives are considered to illustrate how secure mental health care providers can engage in research, to ensure high-quality care.

THE PURPOSES of care within a secure mental health setting includes treating individuals with mental health disorders, who may demonstrate risks to themselves or others (Joint Commissioning Panel for Mental Health, 2013). St Andrew's Healthcare is an example of such a provider of specialist mental healthcare for individuals with complex mental health needs, who require care in a secure setting due to their vulnerability and potential to cause harm to themselves or others. Service users may also present with challenging behaviours, or offence-related risk. Research, service evaluation and clinical audit, conducted within these settings, are vital for the development and improvement of such services, and they serve to inform appropriate future interventions, assessments and care pathways.

Research Centre at St Andrew's Healthcare

The Research Centre at St Andrew's Healthcare, led by Johnny Fountain (Director of Research Centre) and Dr Kieran Breen (Head of Research and Development), promotes, facilitates and delivers research that is focused on improving the lives of people with complex mental health issues. We do this by focusing on three key areas of mental health research:

- (1) *Personalisation*: building an understanding of the role of individualised, patient-centred knowledge.
- (2) *Mental and physical health*: exploring the interaction between mental and physical conditions.
- (3) *Transition*: understanding the patient journey and what can help our patients to live a meaningful life.

Why we do research

We conduct research to improve the lives of people who experience severe mental health issues and complex needs, through the design and delivery of collaborative, patient-driven research that advances mental health practices, treatments, and environments. Our goal is to identify and address the obstacles preventing people from moving to the least restrictive setting, in a safe and sustainable way.

The Research Centre champions research within St Andrew's Healthcare and we strive to ensure that our clinicians deliver high quality evidence-based therapy. We need to demonstrate that the interventions we use have a meaningful impact upon patient outcomes. Innovative, person-centred practice development is very much the driving force in our recent research.

As an example, we took a multidisciplinary approach when our clinicians worked collaboratively with researchers from the

University of Kent to explore the feasibility of using a virtual reality (VR) approach to treat individuals with a dementia diagnosis within our locked Dementia and Huntington's disease Integrated Practice Unit. By having researchers who were clinicians and therefore familiar with the individual participants, the team was able to combine research with clinical expertise in order to develop a process that was person-centred, and therefore maximised the opportunity for individuals in our care to be involved. Overall, the findings demonstrated that VR-based therapy is feasible with this client group. Individuals with dementia and caregivers spoke favourably of this approach, and positive outcomes from the intervention included an increase in pleasure and alertness (Rose et al., 2018).

Given the generally limited evidence base for the development of therapeutic interventions within secure mental health settings, it is incredibly rewarding to be part of a team that is striving to enhance the evidence in this area, as demonstrated by the recent VR research in dementia care (Rose et al., 2018). It has also become evident that further exploration of interventions is often needed in secure mental health settings. For example, existing literature suggests that providing peer support to service users of mental health services is advantageous; however, there was limited evidence of a benefit within a secure setting. This catalysed a qualitative study, investigating the experiences of employees within secure mental health services, who had previously been service users within such a setting (Griffiths & Hancock-Johnson, 2017). The results suggested that peer support workers in secure mental health settings are valuable to service users, clinical staff, the employing organisation, and the peer support workers themselves. Whilst the research led to training recommendations, research is required in order to enhance our understanding and how to maximise this approach.

We promote research studies for new therapies, conduct evaluations of existing interventions in order to improve them, and

our publications contribute to the literature concerning mental health in secure hospital settings. It is important that research informs treatment, guidelines and policy – and our participation in this goal is exemplified by a recent study, led by Professor Paula Reavey (London South Bank University), which seeks to explore how patients in secure mental health settings experience sexuality and intimate relationships. The findings are anticipated to be used in the development of guidance and policy suggestions.

Professional development

Career development is also a motivating factor for conducting research at St Andrew's Healthcare. People may want to increase their understanding of research, in order to further their professional training or progress their careers; or they may wish to develop their research skills as part of their overall academic development. Aspiring psychologists could work towards a core competency of demonstrating evidence-based practice by engaging in clinically relevant research, benefitting potential trainees in the application process for professional psychology doctorates.

The Research Centre currently supports a number of postgraduate students, who are conducting their research at St Andrew's, and we have developed strong collaborations with universities throughout the UK. Through combining clinical knowledge and research expertise, with academic support in specialised areas, these relationships have delivered unique opportunities for innovative research. The establishment of a rigorous assessment process for approving postgraduate studies has ensured that we support only the best quality research that fits within our strategic research aims. Supporting postgraduates is particularly rewarding, as we not only help students develop their research career, but we also use the research to inform the further development of evidence-based practice within our hospital, and therefore improve patient outcomes. Additionally, St Andrew's has developed strong links with

universities and academics through joint research ventures.

Issues with conducting research in a secure mental health setting

The time period commonly experienced between completing an undergraduate psychology degree and becoming reengaged with research, perhaps as part of a job role, may result in graduates losing confidence in their ability to conduct high quality research. Our research experience, this has enhanced our confidence to conduct research using different methodologies and analyses. Furthermore, this boost in confidence also motivated the start of an internal research forum for assistant psychologists working at St Andrew's Healthcare. These sessions include critically evaluating journal articles that are relevant to our work at St Andrew's, presenting our own research, discussing any research ideas or barriers that may be encountered, and promoting the ethos and processes of the Research Centre.

We have also been able to reflect on how research is integral to clinicians' Continuing Professional Development. A clinician's involvement in research will depend on the demands of their role; however, research should be considered a fundamental element of routine clinical work and could benefit from it being built into their role, allowing them allocated time for research.

The participation of individuals who are treated in secure mental health settings, in research studies requires rigorous ethical procedures, including NHS ethical approval via the Integrated Research Application System (IRAS). The process takes time, which must be factored into project schedules, but it is a necessary element of developing and conducting good quality, ethical research. Experience of IRAS has enabled reflection on the benefits of having peer support from someone who has experience in this area. A further consideration for the VR project was conducting research with individuals who lack the capacity to consent. In these

instances, a capacity assessment is completed by a healthcare professional and the potential participant's involvement is considered as part of a best interest decision, inviting a consultee (next of kin or an advocate involved in the individual's care) to consent on behalf of the individual. This process can be challenging, as experienced by Rose et al. (2018), with the process relying on busy clinical staff members and time-consuming postal correspondence for seeking consent from many of the potential consultees.

The patient's perspective

Feedback from patients indicates that a barrier to participation in research studies is a potential lack of willingness to sacrifice their time outside of timetabled therapeutic activities. This has highlighted the importance of fully explaining what the study involves, as well as detailing any advantages or disadvantages of the study, in order to support patients in making an informed choice about participation. Following on from this is the need to provide suitably targeted information for potential participants, as well as the importance of designing the research in a way that works for the target participants. For example, carrying out research in the patient's usual environment, with familiar caregivers or researchers present, in order to maximise convenience and deliver a user-friendly experience, as achieved with the VR and Dementia project (Rose et al., 2018).

Conclusion

Research must be an integral part of healthcare to ensure that practice is evidence-based and achieving the desired outcomes; it is one of the ways we put our patients at the heart of what we do. Researching clinical practice, treatments and environments can lead to improved life experiences, functioning, rehabilitation, wellbeing and quality of life for individuals in our care. Research at St Andrew's Healthcare allows us to better understand which interventions are best for our patients, as well as supporting develop-

ment of better policy and practice. Research in a secure mental health setting is also beneficial for staff, as it is a truly rewarding and inspiring way for clinicians to shape future practice, continue their professional development and evaluate their own care practices.

We have noted some potential barriers to research in such settings. By addressing barriers in a timely manner and collaborating with external stakeholders, we suggest that such obstacles do not need to halt research activity – and can, indeed, improve the quality of the research that is undertaken. We also acknowledge that increased levels of funding for research in secure mental health would enable more clinicians to engage in research; this should, therefore, be addressed through a national strategy to support research that will ultimately improve the lives of patients in such settings.

Correspondence

Ella Hancock-Johnson

Research Assistant, Research Centre,
St Andrew's Healthcare

Email: EHancock-Johnson@standrew.co.uk

References

- Griffiths, C. & Hancock-Johnson, E. (2017). The experiences of paid formal lived experience workers within a secure mental health service. *The Journal of Mental Health Training, Education and Practice*, 12(5), 313–322.
- Joint Commissioning Panel for Mental Health. (2013). *Guidance for commissioners of forensic mental health services*. Available at: <https://www.jcpmh.info/wpcontent/uploads/jcpmh-forensic-guide.pdf>
- MQ. (2015). *UK Mental Health Research Funding*. Available at: https://b.3cdn.net/joinmq/1f731755e4183d5337_apm6b0gll.pdf
- Rose, V., Stewart, I., Jenkins, K. et al. (2018). Bringing the outside in: The feasibility of virtual reality with individuals living with dementia in a locked psychiatric hospital. Submitted to *Dementia: The International Journal of Social Research and Practice*.

The intensity of childhood trauma has no impact on the cognitive development of decision-making style to be exhibited in adulthood

Gemini Katwa & Stacey A. Bedwell

The literature shows that childhood experiences, specifically those of trauma, have an impact on cognitive development. However, it remains unclear exactly how trauma influences the way in which high order cognitive processes, including decision-making are manifested in adulthood. Improving our understanding of the role childhood trauma has in the development of specific cognitive processes will aid in developing improved interventions and practices in the realm of childhood trauma. Here we investigated the relationship between intensity of childhood trauma, age of traumatic event, intensity of confiding in someone at the time of the traumatic event, and general decision-making style in adulthood. Participants completed the childhood traumatic events scale (CTES; Pennebaker & Susman, 2013), and decision-making style in adulthood (GDMS; Scott & Bruce, 1995). Intuitive decision-making style was most frequently seen, however no significant effect of intensity of childhood trauma, age, confiding on decision-making style in adulthood was observed. These findings indicate that intensity of childhood trauma may not impact the way in which decision-making develops.

Introduction

OVER 58,000 children in the UK need protection from abuse. Cognitive abnormalities, including executive deficits, have been reported in adolescents who experienced trauma during childhood (Castaneda et al., 2008).

The impact of trauma during early childhood depends on type of adversity, number of exposures and age (Pechtel & Pizzagalli, 2010). During critical developmental times when neural pathways are formed, functional and structural networks are significantly altered by traumatic events (Perry, 2009). The overdevelopment and underdevelopment of certain pathways, combined with exposure to prolonged traumatic experiences can result in disrupted attachment, behavioural control and cognitive delay (Cook et al., 2005).

Trauma impact on executive functioning depends on age of occurrence influencing the hypothalamic-pituitary-adrenal (HPA) axis (Kuhlman, Vargas, Geiss & Lopez-Duran, 2015). This may have long-term effects on decision-making through an interaction with key HPA axis genes; polymorphisms of CRHR1 and CRHR2 coupled with childhood abuse and neglect have been shown to influence performance on decision making tasks (Guillaume et al., 2013). The HPA axis is regulated by the hippocampus, amygdala and medial prefrontal cortex involved in modulating cognitive and behavioural responses to stress (Lupien et al., 2009). The HPA axis is part of the neuroendocrine system where feedback interactions among the hypothalamus, pituitary gland and adrenal glands control reactions to stress (Nestler et al., 2009). The hypothalamus secretes

vasopressin and corticotrophin-releasing hormone (CRH) which stimulates secretion of adrenocorticotrophic hormone (ACTH) which acts on the adrenal cortex and produces glucocorticoid hormone cortisol. The HPA axis is activated during a 'fight or flight' response where fear signalling impulses activate the sympathetic nervous system in the hypothalamus, thus increasing cortisol during stress (Besedovsky et al., 2008).

This develops susceptibility to acute stress dysregulation during infancy, impairing HPA axis negative feedback, enhancing biological sensitivity to context later in life (Kulhman et al., 2015). Heim et al. (2001) proposed that exposure to childhood abuse can induce sensitisation of the HPA axis, resulting in heightened neuronal activity in response to stress-induced CRH release. With repeated exposure to stress, the sensitised HPA axis may hypersecrete CRH from the hypothalamus. Over time, CRH receptors in the anterior pituitary become down-regulated, producing depression and anxiety symptoms (Heim et al., 2001). Guillaume et al., 2013 suggested that when patients were genotyped for single-nucleotide polymorphisms within CRHR1 and CRHR2 genes, those with a history of sexual abuse had significantly lower Iowa Gambling Task (IGT) scores than non-sexually abused individuals. This sample of patients with a history of childhood sexual abuse and emotional neglect interacted with CRHR1 and CRHR2 gene polymorphisms, respectively, to modulate adult decision-making. These findings suggest that childhood maltreatment in suicide attempters carrying specific CRHR1 and CRHR2 polymorphisms might impair the normal development of these biochemical pathways and consequently lead to altered decision-making abilities in adulthood.

Research suggests that children with historical abuse and post-traumatic stress disorder (PTSD) perform poorly on measures of attention and executive function compared with a matched sample of non-maltreated children, and were more

easily distracted and impulsive than their matched peers (De Bellis et al., 2009). Evidence shows that PTSD in the context of familial trauma significantly impacted on executive functioning than non-familial trauma (McLaughlin et al., 2014).

The present study

There is still little empirical information about how the impact of childhood trauma depends on the developmental stage(s) at which it occurs, or about which regions of the brain may be vulnerable at different stages of development. The precise relationship between timing and nature of adversity, HPA axis dysregulation and impaired brain development is unclear, and can only be determined by ongoing research. The literature clearly suggests childhood trauma has an impact on brain development, particularly the prefrontal cortex which is mainly involved in executive functioning and specifically higher-order processes such as decision-making. The literature also highlights how the nature of adversity affects the individual at different levels of intensity, especially depending on age of trauma occurrence and how much the individual confided about the trauma at the time of the event. Thus, it was important to conduct further research and consider collectively the relationship between intensity of childhood trauma and general decision-making style in adulthood.

The proposed research aimed to establish whether there was an effect of the intensity of childhood trauma before age 17 (death of close friend or family, parental divorce, traumatic sexual experience, victim of violence, traumatic illness or injury or other major upheaval), age of traumatic event, intensity of confiding in someone at the time of the traumatic event, and general decision-making style in adulthood. It was predicted that an increased intensity of childhood trauma will influence general decision-making style shown in adulthood.

Method

Participants

A volunteer sample of 47 (39 female, age 22–64 ($M = 33.49$, $SD = 9.77$)) were recruited via social media (Facebook).

Materials and procedure

Bristol Online Survey (BOS) included the participant information sheet, consent form, demographic questions for age and gender, CTES questionnaire (Pennebaker & Susman, 2013), GDMS questionnaire (Scott & Bruce, 1995) and debrief.

The CTES is a self-report 7-point Likert scale aimed to establish six early traumatic experiences, before age 17, including: death of a very close friend or family, major upheaval between parents, sexual abuse, violence, illness or injury and any other major upheaval significantly impacting life or personality. The CTES also included a self-report 7-point Likert scale assessing the levels of confiding for the type of childhood trauma experienced.

The GDMS questionnaire (Scott & Bruce, 1995) is a self-report 5-point Likert scale used to identify the five decision-making styles determining how individuals approach decision situations: (1) Rational: logical and structured approaches, (2) Intuitive: reliance upon hunches, feelings and impressions, (3) Dependent: reliance upon direction and support of others, (4) Avoidant: postponing or avoiding, (5) Spontaneous: impulsive and prone to making snap or spur of the moment decisions. The GDMS aimed to measure how a decision-making style was approached, out of a total of 25 questions, 5 were related to a GDMS, these were scored and the highest score determined their GDMS.

There was an approximate completion time for the study of 10 minutes. Ethical approval was obtained from Birmingham City University (BCU) Ethics committee on 3 July 2018.

Results

A quasi-experiment design was employed. The independent variable, whilst not directly

manipulated by the researchers was naturally present in the sample in the form of varied experiences of childhood trauma, measured and sorted into discrete conditions by CTES score. The dependent variable, decision-making style reported in adulthood, was measured by GDMS score. Data was analysed in SPSS 24 by way of ANCOVA to determine the effect of childhood trauma on decision-making style. This enabled us to determine the presence of a relationship between experiences of childhood trauma and the decisions made in adulthood, whilst controlling the effects of confiding and age of trauma. To establish meaningful information regarding decision-making style, the continuous GDMS score was classified into five decision-making styles. Similarly, continuous scores on the CTES were broken down to reveal continuous scores for six different types of childhood trauma. This enabled us to establish differences in effect of varied trauma types and experiences e.g. in relation to intensity of trauma.

Descriptive statistics show varied childhood traumas reported (Table 1). Trauma scores were highest for sexual abuse ($M = 5.81$, $SD = 1.54$) and lowest for illness/injury ($M = 4.0$, $SD = 1.56$). Confiding score was highest for illness/injury ($M = 3.2$, $SD = 1.97$) and lowest for sexual abuse ($M = 1.29$, $SD = 0.72$). This indicates that although sexual abuse was the most commonly reported trauma, it was the least confided. Likewise, although illness/injury was the least reported trauma, it was the most confided.

Descriptive statistics show the most common decision-making style within the sample to be intuitive ($N = 24$). The least common decision-making style were rational and spontaneous ($N = 2$; Table 2).

To quantify the trauma experience reported via the CTES, a total score according to six different reported types of childhood trauma was calculated from Likert score answers. A higher numerical score indicates a greater experience of a particular trauma type. The intensity of childhood trauma and confiding of trauma was scored and totalled. The data

Table 1: Descriptive statistics for Childhood Traumatic Events Scale

Variable	Age Range	N	%	M TS	SD TS	Mdn TS	M CS	SD CS	Mdn CS
Childhood Traumatic Event									
Death	1.5-16	22	46.8	5.05	1.133	5.00	2.27	1.579	2.00
Parental Divorce	0.6-14	28	59.6	4.36	1.830	4.50	1.54	.793	1.00
Sexual	3-16	21	44.7	5.81	1.537	6.00	1.29	.717	1.00
Violence	0-16	25	53.2	4.88	1.856	5.00	1.80	1.000	2.00
Illness/ Injury	4-17	15	31.9	4.00	1.558	4.00	3.20	1.971	3.00
Major Upheaval	4-17	22	46.8	5.32	1.129	5.00	2.23	1.193	2.00

Note: TS = Trauma Score, CS = Confide Score

Table 2: Descriptive statistics for General Decision-Making Style

Variable	Possible Range	Actual Range	N	%
General Decision-Making Styles				
Rational	5-25	8-20	2	4.26
Intuitive	5-25	11-25	24	51.06
Dependent	5-25	7-25	7	14.90
Avoidant	5-25	5-25	12	25.53
Spontaneous	5-25	6-24	2	4.26
Total	5-25	5-25	47	100

was analysed for CTES (trauma) and the effect on GDMS, considering CTES (confide) and CTES (age of trauma) as covariates. An ANCOVA revealed no significant main effect of experiences of trauma on decision-making style ($F(3,4) = 0.083, p = .966$). No significant covariate effect between trauma, confiding, age of trauma and decision-making style was found ($F(4,4) = .720, p = .621$).

Discussion

Here we aimed to establish the effect of experiences and intensity of childhood trauma on decision-making style in adulthood. Our findings show no significant effect of intensity of childhood trauma on decision-making style.

The predominant adaptive responses during childhood trauma are dissociative,

resulting in internalising behaviours, this shifts towards hyperarousal resulting in externalising behaviours (Kaplow & Widow, 2007). Detillion et al. (2004) suggested positive social interactions suppress the HPA axis counteracting stress and promoting positive health effects. Alternatively, disrupted attachment is associated with cognitive delays and impaired emotional regulation (Detillion et al., 2004). Based on this knowledge, our findings may be an indicator that disruption occurs regardless of intensity, thus intensity has no carrying impact on decision-making network development.

Intuitive decision-making style was identified here as the most frequent style in those who experienced childhood trauma. Trauma involving negative emotions leads to avoidance and intuition which relies on experiences and associative learning (Glöckner & Wittman, 2010). Juliusson, Karlsson and Garling (2005) indicated past decisions influence the decisions people make in the future. Emotion is central to habituated mental states formed in attachment, in a flexible and adaptive manner as an expression of the underpinning neurobiology. Siegel (1999) reported different types of attachment in children leads to distinct habitually preferred mental patterns in adults. Disrupted attachments result in the expression of extreme preferences for either intuitive or analytic cognitive styles. Stressors that are repeated or occur long-term (chronic) but not those of short-term duration (acute) have been associated with structural changes in decision-making related

brain regions (McEwen, 2007). Therefore, repeated trauma enhances biological sensitivity to context later in life.

The data collected in the present study were retrospective in nature, relying on respondents making accurate judgements about themselves where trauma was reflected on during childhood years. Therefore no causal inferences were implied among the assessed variables. Although this limits the conclusions that can be made, the findings presented here provide a valuable basis on which to build future knowledge. Advantageously, Likert scales are pre-coded with numbers in comparison to open ended questions which decreases error for statistical analysis.

We have also shown that intensity of trauma experienced may have no impact on the way in which decision-making style develops. That is, all who experience childhood trauma experience similar impacts on decision-making development and thus decision-making style exhibited in adulthood. This study forms an important basis for further investigation into the role of early childhood experiences in the development of complex networks of executive functions.

Correspondence

Stacey Bedwell

Lecturer in Psychology
Department of Psychology
Birmingham City University
Email: stacey.bedwell@bcu.ac.uk

References

- Besedovsky, H., Chrousos, G.P. & Rey, A.D. (2008). *The hypothalamus-pituitary-adrenal axis*. Amsterdam: Academic.
- Castaneda, A.E., Tuulio-Henriksson, A., Marttunen, M., Suvisaari, J. & Lönnqvist, J. (2008). A review on cognitive impairments in depressive and anxiety disorders with a focus on young adults. *Journal of Affective Disorders*, *106*(1-2), 1–27.
- Cook, A., Spinazzola, P., Ford, J. et al. (2005). Complex trauma in children and adolescents. *Psychiatric Annals*, *35*, 390–398.
- De Bellis, M., Hooper, S., Spratt, E. & Woolley, D. (2009). Neuropsychological findings in childhood neglect and their relationships to pediatric PTSD. *Journal of the International Neuropsychological Society*, *15*(06), 868.
- Detillion, C.E., Craft, T.K., Glasper, E.R., Prendergast, B.J. & Devries, A. (2004). Social facilitation of wound healing. *Psychoneuroendocrinology*, *29*(8), 1004–1011.
- Glöckner, A. & Wittman, C. (2010). Beyond dual-process models: A categorisation of processes underlying intuitive judgement and decision making. *Thinking & Reasoning*, *16*(1), 1–25.
- Guillaume, S., Perroud, N., Jollant, F. et al. (2013). HPA axis genes may modulate the effect of childhood adversities on decision-making in suicide attempters. *Journal of Psychiatric Research*, *47*(2), 259–265.
- Heim, C., Newport, D.J., Bonsall, R., Miller, A.H. & Nemeroff, C.B. (2001). Altered pituitary-adrenal axis responses to provocative challenge tests in adult survivors of childhood abuse. *American Journal of Psychiatry*, *158*(4), 575–581.
- Jullisson, E.A., Karlsson, N., Garling, T. (2005). Weighing the past and the future in decision making. *European Journal of Cognitive Psychology*, *17*(4), 561–575. doi: 10.1080/09541440440000159.
- Kaplow, J.B. & Widom, C.S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology*, *116*(1), 176–187.
- Kuhlman, K.R., Vargas, I., Geiss, E.G. & Lopez-Duran, N.L. (2015). Age of trauma onset and hpa axis dysregulation among trauma-exposed youth. *Journal of Traumatic Stress*, *28*(6), 572–579.
- Lupien, S.J., McEwen, B.S., Gunnar, M.R. & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nature Reviews Neuroscience*, *10*(6), 434–445.
- McEwen, B. (2007). Physiology and neurobiology of stress and adaptation: Central role of the brain. *Physiological Reviews*, *87*(3), 873–904.
- McLaughlin, K., Sheridan, M. & Lambert, H. (2014). Childhood adversity and neural development: Deprivation and threat as distinct dimensions of early experience. *Neuroscience & Biobehavioral Reviews*, *47*, 578–591.
- Nestler, E.J., Hyman, S.E. & Malenka, R.C. (2009). *Molecular neuropharmacology: A foundation for clinical neuroscience*. New York: McGraw-Hill.
- Pechtel, P. & Pizzagalli, D. (2010). Effects of early life stress on cognitive and affective function: An integrated review of human literature. *Psychopharmacology*, *214*(1), 55–70.
- Pennebaker, J.W. & Susman, J.R. (2013). *Childhood trauma questionnaire*. Retrieved from www.midss.ie
- Perry, B.D. (2009). Examining child maltreatment through a neurodevelopmental lens: Clinical applications of the neurosequential model of therapeutics. *Journal of Loss and Trauma*, *14*(4), 240–255.
- Scott, S. & Bruce, R. (1995). Decision-making style: The development and assessment of a new measure. *Educational and Psychological Measurement*, *55*(5), 818–831.
- Siegel, D. (1999). *The developing mind*. New York: The Guilford Press.

The power of our names, faces, and the self-reference effect: Is there more than meets the eye?

Clea Desebrock

In mythological tales, our names and facial images are often gifted a quasi-magical power. When psychologists use these self-representations (or even items we simply imagine are 'me/mine') as stimuli in experimental tasks, studies have shown that our perception, memory, decision-making, and actions can be enhanced. The phenomenon has been termed the Self-Reference Effect (SRE). Does an underlying 'self' mechanism underpin these effects? Or, do the effects arise because the stimuli are simply more rewarding, familiar, or deeply-encoded? Could the empirical treatment of the SRE be echoing a faulty folk-intuition that the self is a unitary entity? This article briefly explores the colourful history of self-representations, the research field of the SRE, and some of its key challenges.

The power of self-representations

'Little does my lady dream Rumpelstiltskin is my name' (Grimm & Grimm, 1812/2014, p.181)

SELF-REPRESENTATIONS, such as our names and facial images, have long been ascribed a magical, persuasive, even ominous, power in our imaginations. It is a theme that has persisted and endured through folklore, religious texts, and literatures since antiquity. The tale of 'Rumpelstiltskin' or 'The Name of the Supernatural Helper' (published by the Brothers Grimm in the 19th century; Grimm & Grimm, 2014) has recently been traced as far back as 4000 BC (Graça da Silva & Tehrani, 2016). Today's fiction writers continue to deploy this device, as in J.K. Rowling's 'he-who-must-not-be-named' (Rowling, 1997) in the Harry Potter series, for example. Its effectiveness perhaps owes as much to a resonance with our own experience as to mere tradition: there is a felt sense of latent potency when somebody utters our name. Indeed,

the-power-of-names notion has also been integral to societal living. In the Ancient Near East, to learn of a person's 'true' (as opposed to 'public') name was believed to confer on the discoverer a preternatural ability to control or even destroy the name-owner in real terms (Wilson, 1969).

Our facial images have also been endowed with a certain potency. Various interpretations of the myth of Narcissus warn us to beware of an excessive attendance to (and obsessional love for) the image of one's own face; versions of the myth of Medusa assume that a mirror-image of the face of the person (or creature) can be used to render powerless the owner of the real face; and today, the ubiquitous obsession with the 'selfie' apparently underlines the irresistible pull of the self-face.

Outside of literature and mythology, the power of self-representations is also apparent in everyday settings. Those attempting to persuade, or seeking compliance have long enlisted the technique of using a person's name to alter the mind-set and/or behaviours of that person (such as

in cold-calling and sales pitches). Furthermore, the popularity of the ‘Selfieccino’ (where consumers’ own faces are ‘printed’ onto their coffee), and the highly-successful marketing campaigns of global brands such as Coca Cola, which offered consumers the chance to see their own names on products, arguably demonstrate a harnessable power in self-representations which can be used to modulate consuming behaviours.

Exploring the Self-Reference Effect

When psychologists have explored the influence of these self-representations in experimental tasks by using the participants’ own name or face as stimuli, they have found that the participants’ performance on the task is consistently remarkably enhanced (Sui et al., 2012). Perhaps this is not surprising, however. Names and faces recall physical individuals, and so play a practical role in societal living. From the perspective of the owner, whatever accolade, retribution, constraint, or freedom the representation attracts, directly affects the safety and well-being of the actual person. Furthermore, a person has a lifelong relationship with their representations, a deeply encoded elaborate history, conditioned emotional responses, and explicit response biases involved in preserving and managing the integrity of these representations. Yet when researchers have used *non-exclusive* self-representations as stimuli (i.e. those items shared by others, such as personality traits), task performance is likewise enhanced. For example, in a seminal study by Rogers, Kuiper, and Kirker (1977), participants encoded a list of adjectives either self-referentially (by evaluating whether the trait described them), semantically (by comparing the meaning of words), phonemically (by deciding whether words rhymed), or structurally (by evaluating the size of the text), and were then asked to recall as many of the adjectives as they could. Those lists of adjectives that had been encoded using ‘self-reference’ were far better recalled than in any other condition.

Researchers have also found that the

effects of these self-associated entities pervade even the lowest levels of processing. For example, Moray (1959) gave participants a listening task. In one ear, the participants were fed a continuous verbal message, which they repeated aloud, and in the other ear a short list of simple words was presented. The participants’ recognition and recall of the items on the short list was then tested. The participants were not able to remember a single item. The content of the unattended message appeared to be completely rejected by the participants’ conscious perception. However, if the participant’s name was included in this list, this item could exclusively be recalled. It was as though the self-referential item had been able to ‘break through’ into the participants’ conscious perception (a phenomenon which is held to underlie the ‘Cocktail Party Effect’).

Caveats for research on the Self-Reference Effect

Much research on the SRE has been carried out since these early studies and the effect is robust across diverse types of self-referential stimuli, and levels and stages of our information processing (from attention and perception, to memory, decision-making, and even our actions; Desebrock et al., 2018). However, the area has not been without its controversy. In particular, it has been argued that in empirical studies of ‘self-referential processing’ it has often erroneously (or, at best, prematurely) been inferred that the cognitive properties of the SRE must be distinct from those of other factors (Gillihan & Farah, 2005). The key question raised is whether the task-performance modulations we observe and attribute to the SRE are actually self-specific, or whether they are simply enhancements in processing that arise from other properties of self-stimuli. For example, we also see enhancements in our responses when task stimuli are highly-familiar, rewarding, carry positive emotional valence, or have more deeply-encoded and semantically-elaborated representations. In most studies, self-reference effects outdo

other kinds of effects, but given our life-long exposure to, and experience of these items, is this not surprising? Self-representative stimuli could exert an influence on our perceptual and cognitive processing simply by virtue of being (e.g. *more* rewarding, or *more* familiar). In other words, although the effects of self-representations may be somewhat elevated in our imaginations, is the SRE fundamentally nothing 'special'? (Gillihan & Farah, 2005).

To meet the criterion for 'special' in this sense, self-referential processing should be both functionally and anatomically dissociated from other kinds of processing. That is, the SRE should be reliant on a cognitive structure that exclusively handles self-referential processing and consists in neural circuitry that is separate from the circuitry supporting e.g. other-person-referential or general-purpose processing. 'Language' processing, for example, (which is considered 'special') is predominantly supported by perisylvian brain areas, which are not activated during related but non-language-specific processing e.g. sound recognition (Gillihan & Farah, 2005). Without this kind of evidence, it is hard to argue that the SRE is any more than an emergent property of more general-purpose cognitive processing. Furthermore, in our empirical treatment of the SRE, we may be echoing a faulty folk-intuition that the self is a core, fixed entity (Hood, 2012).

We certainly intuit in everyday life that there is a core, fixed, timeless and persisting entity that constitutes our 'self' (Hood, 2012). We also sense that this 'self' has a location. When researchers have probed adults' and pre-school children's intuitions about where their 'self' is, both groups invariably indicate that it is housed somewhere within the body, most commonly at the front of the head, between the eyes (Starman & Bloom, 2012). Philosophers, however, have argued that there is scant evidence supporting this so-called 'ego' or 'pearl' view of the self (Hood, 2012). There is more neuroscientific evidence, argues Hood, for Hume's

'bundle theory'. For Hume, '[A person] is nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement.' (Hume, 1888/1978, p.252). In other words, self simply emerges from this dynamic interplay of experiences. It is an imaginary structure superimposed on the ebb and flow of sensations and cognitions that arise from multiple and distributed systems. Such a structure is thought, by many philosophers and psychologists, to be narrative in form, and it is this that generates the illusion of the self as an entity. 'Who we are is a story of our self – a constructed narrative that our brain creates' (Hood, 2012, p.xiii).

An empirical answer to a philosophical question?

Could the SRE, then, merely be an emergent property of general-purpose (e.g. reward) cognitive systems? If self is simply a fictitious structure and in functional and neuroanatomical terms there is no core mechanism or central hub, how can this work? Do our brains not need some means to fundamentally distinguish self from other, and organise the processing linked to self-versus other-referential items to keep track of our world?

One empirical step forward would be to extract a pure measure of self-referential processing; that is, removed from confounds such as stimulus familiarity, reward, elaborate historical associations and so on, and see what remains of the SRE. Another would be to identify underlying neural circuitry dedicated to self-referential processing. But how can this be achieved using self-representative items such as one's own face, name, or autobiographical knowledge? (e.g. which are highly familiar and overlearned). The answer is that it cannot.

This problem has plagued historical studies assessing the SRE. That is, until 2012 when a new paradigm was introduced into the literature (Sui et al., 2012). The new procedure was able to remove confounds of

familiarity and overlearning, and later was used to pit effects of the SRE directly against factors such as reward and emotional valence. But, how? The key was to use neutral rather than personally-representative stimuli and to instruct participants to simply associate or ‘tag’ these items with the concept of ‘me’. In the paradigm procedure, participants associated geometrical shapes with personal labels (e.g. self—square, friend—circle, stranger—triangle), and then, in the main task, indicated whether the presented shape–label stimuli matched the learnt associations, or if they had been mixed up (e.g. self—triangle, stranger—square). In the ‘self’ condition, where participants were evaluating whether the ‘me’ shape and label stimuli matched, it was found that task performance was greatly enhanced.

In follow-up studies, it was also shown that the SRE could be dissociated (at least in part) from confounding factors inherent in the previous research (e.g. emotional valence: by using images of emotional faces instead of personal labels as stimuli). Furthermore, imaging work revealed that the SRE was supported by neural circuitry that was distinct from circuitry supporting other-person-referential processing, which included the medial pre-frontal cortex (mPFC). The authors proposed that when we process self-referential stimuli, a core self-representation is activated in the mPFC which then functionally connects with domain-specific neural circuitry dependent on the task, to form a dedicated self-network. This core self-mechanism ‘binds’ our information processing across levels and stages of processing (see Sui & Gu, 2017), and so this function and the distinct neural signature of the SRE may indeed suggest that there is something special about the cognitive properties of the self.

Self and the Self-Reference Effect

How does this new evidence sit with the argument that our sense of self as an entity is illusory? It is becoming increasingly clear that the SRE cannot simply be attributed to effects inherent

in *person-exclusive* self-representations such as people’s own names and faces, or solely to the effects of underlying general-purpose cognitive processing. The evidence suggests that distinct neural circuitry does indeed support self-referential processing. This ‘SRE-specific’ circuitry may alter depending on the task domain, but self-referential processing seems consistently to be underpinned by a common integrating factor: activations of a neural hub located in the mPFC (see Sui & Gu, 2017). So, just as people tend to intuit, perhaps a pivotal core self-representation could plausibly be housed at the front of the head, somewhere between the eyes. The picture emerging is that the SRE may be (at least partly) dissociated from other effects both in terms of output and the neural circuitry it relies on. However, what these characteristics of self-referential processing mean for the status of the self, and whether ‘self’ can be reduced to a core neural entity are up for debate. (See Letheby & Gerrans, 2017, for an interesting discussion, which also integrates evidence from psychedelic experience). Debate in the SRE field continues around empirical questions such as: can self-referential processing be functionally dissociated from other kinds of processing? Does a dedicated core self-mechanism underlie the SRE, which supports the effects of all self-referential stimuli across domains? Does self-referential processing have a neural signature? Discussion of the area here is considerably simplified, and many questions and much conceptual analysis remain for psychologists, neuroscientists and philosophers.

On a final note, when other people activate our self-referential processing (e.g. by using our name), perhaps the felt sense of a real shift in our brain activity and its impact on our behaviours explains the intuition that our self-representations harbour a potency. Perhaps the SRE can illuminate how the power-in-self-representations notion has so colourfully and persistently permeated our myths and storytelling. The SRE may also offer a mechanism for understanding, for example, the influence of self-representations

in the context of ‘personalization’ marketing campaigns. From a psychological perspective, we can conclude that there is clearly more to the SRE than meets the eye.

Acknowledgements

This paper has been supported by a PsyPAG bursary.

References

- Desebrock, C., Sui, J. & Spence, C. (2018). Self-reference in action: Arm-movement responses are enhanced in perceptual matching. *Acta Psychologica*, 190, 258–266.
- Gillihan, S.J. & Farah, M.J. (2005). Is self special? A critical review of evidence from experimental psychology and cognitive neuroscience. *Psychological Bulletin*, 131(1), 76–97.
- Graça da Silva, S. & Tehrani, J.J. (2016). Comparative phylogenetic analyses uncover the ancient roots of Indo-European folktales. *Royal Society Open Science*, 3(1), 150645.
- Grimm, J. & Grimm, W. (2014). *The complete first edition: The original folk and fairy tales of the brothers Grimm* (J. Zipes, Ed. & Trans.). Princeton, NJ: Princeton University Press. (Original work published in 1812).
- Hood, B. (2012) *The self illusion: How the social brain creates identity*. New York: Oxford University Press.
- Hume, D. (1888/1978). *A treatise of human nature*, second edition. (L.A. Selby-Bigge & P.H. Nidditch, Eds.). Oxford: Clarendon Press. Retrieved from [<http://www.oxfordscholarlyeditions.com>].
- Letheby, C. & Gerrans, P. (2017). Self unbound: ego dissolution in psychedelic experience. *Neuroscience of Consciousness*, 2017 (1), nix016.
- Moray, N. (1959) Attention in dichotic listening: Affective cues and the influence of instructions. *Quarterly Journal of Experimental Psychology*, 11(1), 56–60.
- Rogers, T.B., Kuiper, N.A. & Kirker, W.S. (1977). Self-reference and the encoding of personal information. *Journal of Personality and Social Psychology*, 35(9), 677–688.
- Rowling, J.K. (1997). *Harry Potter and the philosopher’s stone*. London: Bloomsbury.
- Starman, C. & Bloom, P. (2012). Windows to the soul: Children and adults see the eyes as the location of the self. *Cognition*, 123, 313–318.
- Sui, J., He, X. & Humphreys, G.W. (2012). Perceptual effects of social salience: evidence from self-prioritization effects on perceptual matching. *Journal of Experimental Psychology: Human Perception and Performance*, 38(5), 1105–1117.
- Sui, J. & Gu, X. (2017). Self as object: Emerging trends in self research. *Trends in Neurosciences*, 40(11), 643–653.
- Wilson, J. (1969). The god and his unknown name of power. In J.B. Pritchard (Ed.) *Ancient near eastern texts relating to the old testament* (third edition, pp.12–14). Princeton, NJ: Princeton University Press.

Correspondence

Clea Desebrock

DPhil candidate

Department of Experimental Psychology,
University of Oxford.

Email: clea.desebrock@psy.ox.ac.uk

Cognition and religiosity: Who is most likely to believe?

Leor Zmigrod

‘TO THE PSYCHOLOGIST, the religious propensities of man must be at least as interesting as any other of the facts pertaining to his mental constitution’ (1902; p.2), wrote the famous psychologist William James in the *Varieties of Religious Experience*. Indeed, in keeping with James’s nearly-prophetic wisdom on the discipline of psychology, over the last decade a new field has emerged that investigates the relationship between people’s ‘religious propensities’ and their ‘mental constitution’ – a field titled the ‘cognitive science of religion’ (Boyer, 2008; Whitehouse, 2004).

The cognitive science of religion examines the normative cognitive biases that facilitate religious beliefs (Norenzayan, 2016). A range of human mental heuristics are thought to make children and adults ‘intuitive theists’ who believe in supernatural agents and creationist accounts (Järnefelt et al., 2015; Kelemen, 2004; Kelemen & Rosset, 2009; Banerjee & Bloom, 2014; Heywood & Bering, 2014; Norenzayan & Gervais, 2013). As Mercier and colleagues (2018) recently noted, the reasons people believe in gods can be divided into *ultimate* explanations and *proximate* explanations; ultimate accounts describe why religious belief evolved, while proximate reasons reflect the immediate factors that shape who believes in gods, and why and when they do.

Given the ample discussions around the ultimate evolutionary explanations for why humans are prone to adopt religious beliefs (see Norenzayan, 2016 and the recent *Oxford Handbook of Evolutionary Psychology and Religion*, 2018), the focus here will be on the empirical landscape addressing proximate cognitive explana-

tions for the question: *who is most likely to believe?*

As noted by Boyer and Baumard (2018), ‘the concepts that we usually identify as religious (ancestors, gods, spirits, etc.) all belong to a domain of human imagination that we may call the *supernatural repertoire*’ (emphasis added). Consequently, when researchers have sought to explore the psychological roots of religious belief, they study psychological processes associated with the human capacity for imagination (Byrne & Giroto, 2009; Roth, 2007), theory of mind (e.g. Norenzayan et al., 2012; Baron-Cohen & Wheelwright, 2004), anthropomorphism (Epley et al., 2007) and teleological thinking (Banerjee & Bloom, 2014; Heywood & Bering, 2014). That is, psychologists have studied how the human mind may give rise to the supernatural *content* of religious beliefs, and whether differences in our abilities to imagine and empathize explain who is more likely to possess religious beliefs.

Nonetheless, there is increasing scientific consensus that the psychology of religion is not only shaped by the content of beliefs (i.e. by humans’ intuitive supernatural repertoire), but also by *strictness* of religious ideologies. Indeed, as articulated by Shariff and Mercier (2018), religions ‘represent constellations of elements – such as supernatural punishment, group rituals, and sacralisation – working synergistically together to compel the behaviour of the religious adherents’. To fully understand the relationship between religious beliefs and cognitive processes, it is therefore valuable to investigate how the stringent and compelling features of religions shape cognition.

Since religious belief systems consist

of strict rules and rituals that offer their adherents clarity and stability, Zmigrod and colleagues (2018) hypothesised that religious adherence and practice of repetitive religious rituals may be related to the persistence versus flexibility of one's cognition. In a sample of over 700 participants, religious disbelief was related to heightened cognitive flexibility across three independent behavioural neuropsychological tests. Furthermore, amongst religious individuals, lower frequency of religious practice was positively related to cognitive flexibility. Interestingly, current religious affiliation was more influential than religious upbringing for individuals' cognitive flexibility, signifying that the act of choosing one's affiliation is more indicative of one's cognitive control style than one's upbringing. The findings suggest that affiliation and engagement with religion may be rooted in and have consequences for cognitive control styles, and that flexibility of thought may be linked to the strictness with which one adheres to religious ideologies.

These findings complement a rich literature on the psychology of religion that has illustrated that nonreligious individuals have a stronger tendency to inhibit intuitively compelling incorrect ideas on the Cognitive

Reflections Test, which is thought to measure an analytical cognitive style (Gervais & Norenzayan, 2012, 2018; Pennycook et al., 2012; Shenhav et al., 2012; see meta-analysis: Pennycook, Ross, Koehler, & Fugelsang, 2016; see failures to replicate: Sanchez, Sundermeier, Gray, & Calin-Jageman, 2017; Yonker et al., 2016). Future research should investigate whether there is an interaction between an analytical and flexible cognitive style in shaping religious beliefs and identities.

William James' intuition that individuals' religious propensities may in fact be linked to features of their cognitive constitution has opened up an entire science about the psychological origins of belief. It is now up to the next generation of psychologists to deepen this understanding and address the field's methodological and conceptual challenges (Mercier et al., 2018; Beit-Hallahmi, 2018).

Correspondence

Leor Zmigrod

PhD Candidate

Department of Psychology,

University of Cambridge

Email: lz343@cam.ac.uk

References

- Banerjee, K. & Bloom, P. (2014). Why did this happen to me? Religious believers' and non-believers' teleological reasoning about life events. *Cognition*, 133(1), 277–303.
- Baron-Cohen, S. & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 34, 163–175.
- Beit-Hallahmi, B. (2016). Challenges to an evolutionary perspective on religion. In James R. Liddle & Todd K. Shackelford (Eds.) *The Oxford Handbook of Evolutionary Psychology and Religion*. Oxford: Oxford University Press.
- Boyer, P. & Baumard, N. (2016). The Diversity of Religious Systems Across History: An Evolutionary Cognitive Approach. In James R. Liddle & Todd K. Shackelford (Eds.) *The Oxford Handbook of Evolutionary Psychology and Religion*. Oxford: Oxford University Press.
- Boyer, P. (2008). Being human: Religion: Bound to believe? *Nature*, 455(7216), 1038–1039.
- Epley, N., Waytz, A. & Cacioppo, J.T. (2007). On seeing human: A three-factor theory of anthropomorphism. *Psychological Review*, 114(4), 864.
- Gervais, W.M. & Norenzayan, A. (2012). Analytic thinking promotes religious disbelief. *Science*, 336(6080), 493–496.
- Heywood, B.T. & Bering, J.M. (2014). 'Meant to be': How religious beliefs and cultural religiosity affect the implicit bias to think teleologically. *Religion Brain and Behavior*, 4(3), 183–201.
- James, W. (1902). The varieties of religious experience: A study in human nature. In *Gifford lectures on natural religion, University of Edinburgh, Edinburgh, Scotland; the chapters in this text were presented at the aforementioned lectures in 1901–1902*. UK: Green and Co, Longmans.
- Järnefelt, E., Canfield, C.F. & Kelemen, D. (2015). The divided mind of a disbeliever: Intuitive beliefs about nature as purposefully created among different groups of non-religious adults. *Cognition*, 140, 72–88.

- Kelemen, D. (2004). Are children 'intuitive theists'? Reasoning about purpose and design in nature. *Psychological Science*, *15*(5), 295–301.
- Kelemen, D., & Rosset, E. (2009). The human function compunction: Teleological explanation in adults. *Cognition*, *111*(1), 138–143.
- Mercier, B., Kramer, S.R. & Shariff, A.F. (2018). Belief in God: Why people believe, and why they don't. *Current Directions in Psychological Science*, *27*(4), 263–268.
- Norenzayan, A. (2016). Theodiversity. *Annual Review of Psychology*, *67*, 465–488.
- Norenzayan, A. & Gervais, W.M. (2013). The origins of religious disbelief. *Trends in Cognitive Sciences*, *17*(1), 20–25.
- Norenzayan, A., Shariff, A.F., Gervais, W.M. et al. (2016). The cultural evolution of prosocial religions. *Behavioral and Brain Sciences*, *39*.
- Pennycook, G., Cheyne, J.A., Seli, P., Koehler, D.J. & Fugelsang, J.A. (2012). Analytic cognitive style predicts religious and paranormal belief. *Cognition*, *123*(3), 335–346.
- Pennycook, G., Ross, R.M., Koehler, D.J. & Fugelsang, J.A. (2016). Atheists and agnostics are more reflective than religious believers: Four empirical studies and a meta-analysis. *PLoS One*, *11*(4), e0153039.
- Sanchez, C., Sundermeier, B., Gray, K. & Calin-Jageman, R.J. (2017). Direct replication of Gervais & Norenzayan (2012): No evidence that analytic thinking decreases religious belief. *PLoS One*, *12*(2), e0172636.
- Shariff, A.F. & Mercier, B. (2016). The evolution of religion and morality. In James R. Liddle and Todd K. Shackelford (Eds.) *The Oxford Handbook of Evolutionary Psychology and Religion*. Oxford: Oxford University Press.
- Shenhav, A., Rand, D.G. & Greene, J.D. (2012). Divine intuition: Cognitive style influences belief in God. *Journal of Experimental Psychology General*, *141*(3), 423.
- Whitehouse, H. (2004). Modes of religiosity and the cognitive science of religion. *Method and Theory in the Study of Religion*, *16*(3), 321–335.
- Yonker, J.E., Edman, L.R., Cresswell, J. & Barrett, J.L. (2016). Primed analytic thought and religiosity: The importance of individual characteristics. *Psychology of Religion and Spirituality*, *8*(4), 298.
- Zmigrod, L., Rentfrow, P.J., Zmigrod, S. & Robbins, T.W. (2018). Cognitive flexibility and religious disbelief. *Psychological Research*, 1–11.

Is there a synaesthetic personality profile? Characterising synaesthetes' singularity

Anna Mas-Casadesús

In synaesthesia, senses are 'blended together' and experiences in one sensory modality produce additional sensations in another modality. Not only do synaesthetes perceive the world in a different way, but they also seem to present a unique set of behaviours, cognitions, and emotional patterns. The current literature review aims to give a brief overview of the research conducted to date on synaesthetes' personality, identifying key directions for future research.

SYNAESTHESIA, often referred to as the 'joining of the senses', is a fascinating condition whereby sensations in one modality produce automatic and involuntary sensations in another modality. For instance, some synaesthetes see colours when they hear music; others experience sounds when they see moving or flickering visual patterns. Synaesthesia can also be triggered by concepts. This is the case for grapheme-colour synaesthetes, who experience colours when they hear, see, or think about certain cognitive stimuli such as the letters of the alphabet or the months of the year. In contrast, other synaesthetes see visuo-spatial representations of these concepts (e.g. the months of the year in an oval shaped form), experiencing what is known as sequence-space synaesthesia.

Over 80 different types of synaesthasias have been described (Day, 2018). However, all synaesthetes have something in common: they experience the world in a unique way compared to non-synaesthetes. Furthermore, the implications of synaesthetes' perceptual singularity extend beyond the synaesthetic experience itself. For example, recent investigations have suggested associations between synaesthesia and enhanced learning (e.g. Bankieris & Aslin, 2016), sensory perception (e.g. Ward et al., 2016), visual imagery (e.g. Spiller et al., 2015), memory (see Meier &

Rothen, 2013 for a review), and creativity (e.g. Chun & Hupé, 2016).

The distinctiveness with which synaesthetes experience reality has also led scholars to wonder if they might present a distinct identity or personality profile. Banissy and colleagues (2013) assessed 81 grapheme-colour synaesthetes (several of whom also experienced additional types of synaesthasias) and 112 non-synaesthete controls with the Big Five Inventory (BFI). The BFI is a self-reported inventory designed to measure the Five Factor Model of personality and includes the dimensions of extraversion, openness to experience, neuroticism, agreeableness, and conscientiousness. The study revealed that synaesthetes experienced significantly higher scores of **openness to experience** when compared to control subjects.

Openness to experience encompasses several discrete facets, including active imagination (fantasy), aesthetic sensitivity, attentiveness to inner feelings, preference for variety, and intellectual curiosity. It is also said to correlate with artistic inclinations (e.g. Banissy et al., 2013). This is interesting if we take into account that synaesthetes score higher in creativity measures (e.g. Chun & Hupé, 2016) and are prevalent in the creative industries and art-related university courses (Janik McErlean & Banissy, 2016).

Additionally, openness to experience is conceptually linked to **fantasising**, a subscale of empathy (Banissy et al., 2013). Accordingly, Banissy et al.'s (2013) synaesthetes also scored significantly higher than controls in this subscale as assessed with the Interpersonal Reactivity Index (IRI), an empathy questionnaire that comprises the subscales of perspective taking, empathetic concern, and personal distress as well.

Two further investigations which assessed similar samples with different measures of the same personality traits supported these results (Chun & Hupé, 2016; Rouw & Scholte, 2016). However, Ward et al. (2018) did not replicate the differences in openness to experience in a study which focused on sequence-space synaesthetes (30 synaesthetes vs. 204 controls) and used the Ten Item Personality Inventory (TIPI), a more condensed measure of the Big Five personality domains. Additionally, Rader and Tellegen (1987), who evaluated 307 participants on personality and music-colour synaesthesia (numbers of synaesthetes and non-synaesthetes not reported), found a synaesthetic difference only for the absorption (i.e. fantasising) trait but not for other personality dimensions. It should be noted though, that this study used the Multidimensional Personality Questionnaire (MPQ), an inventory based on a different model of personality compared to the Big Five.

There is also some evidence suggesting that synaesthesia might be linked to higher rates of **positive schizotypy**, a personality trait which has also been related to creativity and artistic achievement in the general (non-synaesthetic) population (Banissy et al., 2013; Janik McErlean & Banissy, 2016). Schizotypy is a theoretical construct that involves a continuum of personality characteristics and experiences ranging from normative dissociative states to extreme states of mind. It is associated with general psychosis and schizophrenia in particular.

The Oxford-Liverpool Inventory of Feelings and Experiences (O-Life) is a standardised instrument designed to

measure schizotypal traits in non-clinical groups and includes the four dimensions which are theorised to comprise this personality trait: i) unusual experiences, ii) introverted anhedonia, iii) cognitive disorganisation, and iv) compulsive non-conformity. Banissy and colleagues (2012) compared 30 grapheme-colour synaesthetes and 30 controls, observing that synaesthetes obtained significantly higher scores for the unusual experiences and cognitive disorganisations subscales. However, Janik McErlean and Banissy (2016) replicated the results for unusual experiences but not for cognitive disorganisation in a study which evaluated 35 grapheme-colour synaesthetes (some of them with extra types) and non-synaesthetes.

Synaesthesia has thus been quite consistently linked to higher levels of openness to experience, absorption/fantasising, and positive schizotypy. With less reliability, synaesthesia has also been associated to other personality traits, including higher rates of neuroticism and emotionality and lower rates of agreeableness and conscientiousness. Rouw and Scholte (2016) observed that synaesthetes experienced higher levels of **neuroticism**, but, in other studies, synaesthetes and controls obtained similar scores on this trait (Banissy et al., 2013; Ward et al., 2018). Similarly, synaesthetes' **emotionality** ratings are inconsistent throughout studies, with higher averages than non-synaesthetes in Banissy and Ward (2007) and Rouw and Scholte (2016) and no group differences in Banissy et al. (2013) and Baron-Cohen et al. (2016). Lastly, two studies have observed significantly lower levels of **agreeableness** (Banissy et al., 2013) and **conscientiousness** (Rouw & Scholte, 2016) for synaesthetes compared to controls (but see Banissy et al., 2013; Chun & Hupé, 2016; Rouw & Scholte, 2016; Ward et al., 2018).

Evidence to date seems thus to suggest that synaesthetes share a combination of characteristics or qualities that constitute a unique personality profile. However, the reasons for this difference are currently unclear. Several explanations have been

suggested. Banissy et al. (2013) proposed that it could be the consequence of experiencing the world through synaesthesia (i.e. synaesthesia causes specific personality characteristics). Alternatively, the researchers argued that having synaesthesia might predispose individuals towards certain personality traits to begin with. In other words, it could be that synaesthesia and personality might be mediated by a common genetic cause. Finally, they also suggested that (although unlikely) a given personality profile might prompt synaesthesia to develop.

In addition to explaining the roots of the synaesthetic personality profile, there are further issues and questions to be addressed. For instance, Ward et al.'s (2018) and Rader and Tellegen (1987) observed differential personality patterns for sequence-space and music-colour synaesthetes, respectively. Consequently, these findings might suggest that different types of synaesthesia could present different personality profiles. Another interesting question concerns the possibility that synaesthetes who report a high number of synaesthesia types or stronger synaesthetic experiences, as opposed to those who present fewer types or weaker experiences, might also show differences in personality. Rouw and Scholte (2016) and Hossain et al. (2017) examined this issue

and provided initial indications that there might be a positive correlation between the number or strength of synaesthesias and the intensity of personality traits experienced.

In conclusion, the different studies reported here suggest that synaesthetes seem to have a unique personality profile. Crucially, they also reinforce the idea that the unusual perceptual experiences experienced by synaesthetes have wider emotional and cognitive repercussions. Future research now needs to determine to what extent this is the case. In addition, establishing the causal mechanisms of these personality differences would be of special interest to further understand the scope of the synaesthetic particularity. Critically, I suggest that studies that investigate the existence of common genetic markers for synaesthesia and personality traits could greatly contribute to this debate.

Correspondence

Anna Mas-Casadesús

PhD Candidate,

Department of Psychology, The University of Edinburgh.

Email: a.mascasadesus@ed.ac.uk

References

- Banissy, M.J. & Ward, J. (2007). Mirror-touch synesthesia is linked with empathy. *Nature Neuroscience*, *10*(7), 815–816.
- Banissy, M.J., Cassell, J.E., Fitzpatrick, S. et al. (2012). Increased positive and disorganised schizotypy in synaesthetes who experience colour from letters and tones. *Cortex*, *48*(8), 1085–1087.
- Banissy, M.J., Holle, H., Cassell, J. et al. (2013). Personality traits in people with synaesthesia: Do synaesthetes have an atypical personality profile?. *Personality and Individual Differences*, *54*(7), 828–831.
- Bankieris, K.R. & Aslin, R.N. (2016). Explicit associative learning and memory in synesthetes and nonsynesthetes. *i-Perception*, *7*(5), 2041669516658488.
- Baron-Cohen, S., Robson, E., Lai, M.C. & Allison, C. (2016). Mirror-touch synaesthesia is not associated with heightened empathy, and can occur with autism. *PloS one*, *11*(8), e0160543.
- Chun, C.A. & Hupé, J.M. (2016). Are synesthetes exceptional beyond their synesthetic associations? A systematic comparison of creativity, personality, cognition, and mental imagery in synesthetes and controls. *British Journal of Psychology*, *107*(3), 397–418.
- Day, S. (2018, March 7). *Types of synesthesia*. Retrieved from <http://www.daysyn.com/>
- Hossain, S.R., Simner, J. & Ipser, A. (2017). Personality predicts the vibrancy of colour imagery: The case of synaesthesia. *Cortex*, *105*, 74–82.
- Janik McErlean, A.B. & Banissy, M.J. (2016). Examining the relationship between schizotypy and self-reported visual imagery vividness in grapheme-color synaesthesia. *Frontiers in Psychology*, *7*, 131.
- Meier, B. & Rothen, N. (2013). Synaesthesia and memory. In J. Simner & E. Hubbard (Eds.) *The Oxford Handbook of Synesthesia*. Oxford: Oxford University Press.
- Rader, C.M. & Tellegen, A. (1987). An investigation of synesthesia. *Journal of Personality and Social Psychology*, *52*(5), 981–987.
- Rouw, R. & Scholte, H. S. (2016). Personality and cognitive profiles of a general synesthetic trait. *Neuropsychologia*, *88*, 35–48.
- Spiller, M.J., Jonas, C.N., Simner, J. & Jansari, A. (2015). Beyond visual imagery: How modality-specific is enhanced mental imagery in synesthesia?. *Consciousness and Cognition*, *31*, 73–85.
- Ward, J., Ipser, A., Phanvanova, E., Brown, P., Bunte, I. & Simner, J. (2018). The prevalence and cognitive profile of sequence-space synaesthesia. *Consciousness and Cognition*, *61*, 79–93.
- Ward, J., Rothen, N., Chang, A. & Kanai, R. (2016). The structure of inter-individual differences in visual ability: Evidence from the general population and synaesthesia. *Vision Research*, *14*, 293–302.

The importance of assessing alexithymia in psychological research

Lydia Hickman

Alexithymia is defined as a difficulty in identifying and describing one's own emotions. The increased study of this subclinical condition has revealed that alexithymia can account for certain characteristics, which are presently incorporated into the classifications of various clinical conditions. An example is the extent to which alexithymia can account for differences in emotional processing and empathy in individuals with Autism Spectrum Disorder (ASD). Being a prevalent transdiagnostic factor, alexithymia challenges our definitions and assessments of a wide variety of clinical conditions. Subsequently, this discussion paper aims to highlight the importance of controlling for the effects of alexithymia on task performance by employing alexithymia assessments in psychological research.

OUR DEFINITIONS of clinical conditions are at the foundation of psychological research. We rely on them in order to conduct clinical research, particularly during the participant recruitment process. However, recent studies of alexithymia are leading us to question and reconsider our previously accepted classifications of clinical conditions, including Autism Spectrum Disorder (ASD).

What is alexithymia?

Alexithymia is defined as a difficulty in identifying and describing one's own emotions (Nemiah et al., 1976). Whilst present in approximately 10 per cent of the typical population, an elevated level of alexithymia of approximately 50 per cent has been observed in conditions such as ASD (Berthoz & Hill, 2005). At present, the most common measure of alexithymia is the self-report Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994). However, attempts are being made to obtain a more objective measure, with notable potential in a method of comparison between skin conductance responses and self-reported arousal during the observation of emotion-inducing stimuli (Gaigg, et al., 2016). Measuring alexithymia

in studies of clinical conditions is important as we need to identify which characteristics can be accounted for by the condition and which may instead be attributable to comorbid alexithymia.

Relationship between alexithymia, ASD and empathy

Alexithymia assessments have a significant impact on the way in which we define ASD. In particular, the concept of empathy in ASD is prominently debated. Previous research has suggested that differences in emotional processing and empathy are characteristic of ASD (Baron-Cohen, 1995). However, this proposition has been anecdotally challenged by individuals with the condition. Recent research has subsequently revealed that emotional processing and empathy differences in individuals with ASD are accounted for by the presence of alexithymia within the ASD population (Bird et al., 2011; Bird et al., 2010; Cook et al., 2013). Critically, differences in emotional processing and empathy are not observed in all individuals with ASD, only those with comorbid alexithymia.

In the initial stages of emotional processing, it is necessary for individuals to attend emotional stimuli, such as the eyes,

in order to extract emotional information. Previous literature has commonly referred to avoidance of eye contact as a trait of ASD, with claims that toddlers' focus on the mouth rather than on the eyes is a predictor of ASD severity (Jones et al., 2008). However, Bird, Press and Richardson (2011) have demonstrated that levels of alexithymia, not ASD, predict emotional attention (ratio of attention directed to eyes versus mouth). Instead, ASD scores predict social attention (ratio of attention directed to faces versus scenes). Thus, the avoidance of emotional stimuli thought to be characteristic of ASD is actually the result of co-occurring alexithymia.

Alexithymia can also account for difficulties in the analysis of emotional cues. Following an analysis of participant performance on tasks requiring the discrimination and recognition of both identity and emotions from faces, alexithymia has been associated with selective difficulties in the recognition of emotion, as opposed to recognition of faces and discrimination of emotions and faces (Cook et al., 2013). Crucially, a diagnosis of ASD did not relate to performance on any of these tasks. Accordingly, these results demonstrate that those with alexithymia have difficulties in a recognition ability specific to emotional processing, which cannot be accounted for by a general recognition deficit or a deficit in the visual processing of stimuli.

In order for individuals to empathise they must match the emotional state of the target individual. By recording brain activity with fMRI during a task in which participants observe a visual signal which indicates when their partner receives a shock (Singer et al., 2008), this aspect of empathy can be measured without the requirement of the individual to identify the emotion or report their own emotion. This removes the possibility that failure in the task results from impairments in superfluous stages of emotional processing due to alexithymia and enables us to observe the specific effect of alexithymia on the ability to match emotional states. Bird et al. (2010) operationalised empathy as overlapping brain activity for self and others'

pain. Their results showed that individuals with ASD who have a low alexithymic trait index show empathic activation in the anterior insular. Notably however, this activation is absent for those with alexithymia. Again, there were no effects of ASD on this activation, thus indicating that differences in empathy do not explicitly relate to ASD.

Overall, studies of emotion recognition and empathy emphasise the importance of assessing alexithymia when studying the ASD population. Implementing such assessments enables differentiation between behaviours that are characteristic of ASD and those that are related to comorbid conditions such as alexithymia. Findings from studies employing this method have a substantial impact on our definition of ASD, specifically the notion that individuals with ASD are unable to empathise. With a changing consensus of which symptoms are characteristic of ASD, it follows that diagnostic assessments must be amended to account for this. Problematically, recent data suggests that alexithymia correlates with performance on the Autism Diagnostic Observation Schedule (ADOS; Hobson et al., in press), demonstrating that the diagnostic technique fails to control for the effect of comorbid alexithymia. Evidently, further work is necessary to develop a more accurate definition and diagnostic process of ASD in light of comorbid alexithymia.

Transdiagnostic nature of alexithymia

An increased prevalence of alexithymia has been identified in a number of clinical conditions (e.g. Costa et al., 2010). It is therefore reasonable to consider that the accountability of alexithymia for differences in task performance could extend further than the study of ASD. For instance, differences in emotion recognition amongst those with eating disorders can also be explained by co-occurring alexithymia (Brewer et al., 2015). The incorporation of alexithymia assessments in psychological research is therefore pertinent to a wide range of clinical conditions.

Given that alexithymia co-occurs alongside a variety of different clinical conditions, it follows that transdiagnostic symptoms, namely those which occur across a variety of conditions, may be accounted for by alexithymia. Whilst it is clear that differences in emotion recognition and empathy can be accounted for by alexithymia, there are many different domains in which alexithymia is associated with performance. An example of this is disrupted sleep, which is characteristic of many different conditions. Murphy et al. (2018) have shown that alexithymia, independent of depression and anxiety, is associated with reduced sleep quality. Whilst the mechanism behind this association remains unclear, their findings have implications as to the way in which we view variations in sleep quality across clinical conditions. It may be that a reduction in sleep quality is the result of comorbid alexithymia rather than a direct result of the condition being studied. Such questions must be asked about any and all characteristics which alexithymia is found to account for.

Akin to sleep quality, general mental health issues are a further transdiagnostic factor which can have a severe impact on the lives of individuals with clinical conditions. A crucial finding indicates that alexithymia is associated with overall poorer mental health, including an increased risk of self-harm (Norman & Borrill, 2015). This has clear importance in the study of wellbeing amongst clinical patients and conditions as it may explain patterns of mental health problems. These findings are compounded by the fact that some psychological interventions have been found to be less successful in individuals with high levels of alexithymia (Ogrodniczuk et al., 2011). It is speculated that this is due to the individual's inability to describe their own emotions and there-

fore participate successfully in therapy, as well as the therapists' negative reaction to alexithymic patients. Thus, it is also vital that those aiming to provide practical mental health applications for a variety of clinical conditions consider the role of alexithymia in any mental health interventions they are assessing or developing.

Concluding remarks

The vast amount of studies identifying alexithymia as accountable for differences in task performance across a range of clinical conditions demonstrates how important it is as an area of research. Literature addressing the conflation of characteristics associated with ASD and alexithymia highlights the relevance of alexithymia measurements in experimental studies with the ASD population. Further to this, being a transdiagnostic factor, it is important that alexithymia is considered within a variety of facets of psychological research. Overall, the research and findings discussed here lead us to question the utility of our current definitions of clinical conditions and their associated characteristics. Ultimately, this research should contribute to the reassessment of the classifications of clinical conditions. At a minimum, it is necessary for current studies to measure and control for alexithymia in order to account for its influence on task performance and reduce the conflation of behaviours caused by alexithymia and the studied condition.

Correspondence

Lydia Hickman

MSc (Research) Student,
School of Psychology,
University of Birmingham

Email: LXH856@student.bham.ac.uk

References

- Bagby, R.M., Parker, J.D. & Taylor, G.J. (1994). The Twenty-item Toronto Alexithymia Scale-II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, 38(1), 33–40.
- Baron-Cohen, S. (1995). *Mindblindness: An essay on autism and theory of mind*. Boston: MIT Press/Bradford Books.
- Berthoz, S. & Hill, E.L. (2005). The validity of using self-reports to assess emotion regulation abilities in adults with autism spectrum disorder. *European Psychiatry*, 20(3), 291–298.
- Bird, G., Press, C. & Richardson, D.C. (2011). The role of alexithymia in reduced eye-fixation in Autism Spectrum Conditions. *Journal of Autism and Developmental Disorders*, 41, 1556–1564.
- Bird, G., Silani, G., Brindley, R., White, S., Frith, U. & Singer, T. (2010) Empathic brain responses in insula are modulated by levels of alexithymia but not autism. *Brain*, 133, 1515–1525.
- Brewer, R., Cook, R., Cardi, V., Treasure, J. & Bird, G. (2015). Emotion recognition deficits in patients with eating disorders are explained by co-occurring alexithymia. *Royal Society Open Science*, 2, 140382.
- Cook, R., Brewer, R., Shah, P. & Bird, G. (2013). Alexithymia, not autism, predicts poor recognition of emotional facial expressions. *Psychological Science*, 24(5), 723–732.
- Costa, A., Peppe, A., Carlesimo, G., Salamone, G. & Caltagirone, C. (2010). Prevalence and Characteristics of Alexithymia in Parkinson's Disease. *Psychosomatics*, 51(1), 22–28.
- Gaigg, S.B., Cornell, A.S. & Bird, G. (2016). The psychophysiological mechanisms of Alexithymia in Autism Spectrum Disorder. *Autism*, 22(2), 227–231.
- Hobson, H., Westwood, H., Conway, J., McEwen, F., Colvert, E., Catmur, C., Bird, G. & Happé, F. (in press). The impact of alexithymia on autism diagnostic assessments.
- Jones, W., Carr, K. & Klin, A. (2008). Absence of preferential looking to the eyes of approaching adults predicts level of social disability in 2-year-old toddlers with autism spectrum disorder. *Archives of General Psychiatry*, 65(8), 946–954.
- Murphy, J., Wulff, K., Catmur, C. & Bird, G. (2018). Alexithymic traits, independent of depression and anxiety, are associated with reduced sleep quality. *Personality and Individual Differences*, 129, 175–178.
- Nemiah, J.C., Freyberger, H. & Sifneos, P.E. (1976). Alexithymia: A view of the psychosomatic process. *Modern Trends in Psychosomatic Medicine*, 3, 430–439.
- Norman, H. & Borrill, J. (2015). The relationship between self-harm and alexithymia. *Scandinavian Journal of Psychology*, 56(4), 405–419.
- Ogrodniczuk, J.S., Piper, W.E. & Joyce, A.S. (2011). Effect of alexithymia on the process and outcome of psychotherapy: A programmatic review. *Psychiatry Research*, 190(1), 43–48.
- Singer, T., Snozzi, R., Bird, G. et al. (2008). Effects of oxytocin and prosocial behavior on brain responses to direct and vicariously experienced pain. *Emotion*, 8(6), 781–791.

What can psychology tell us about the impact of the use of technology and social media on our mental health?

Rebecca Dyas

Social media and the readily access to it, via tablets and smartphones, has not been around for long enough to be sure of its true impact. Research into any potential effects is steadily developing and many studies highlight mental health as being vulnerable to its use. Here I briefly explore the current literature and emphasise the saliency of psychologists, their research and practice, in helping to understand the impact.

Stone Age, Bronze Age, Iron Age...

IN THE AGE of rapid technological advances and addictions to social media, we need psychology more than ever now to inform us of the impacts this may have on developing brains, mental health and humans as social beings.

Social media has radically changed the way that we communicate and the invention of smart phones has allowed websites such as Facebook, Twitter and Instagram to be accessible at all times. The term to 'like' something has developed a new meaning as a result of social media; it now has connotations with receiving virtual notifications and with responding to another's picture, video or words seen online. There is evidence to suggest that receiving a 'like' on social media can release the neurotransmitter Dopamine, which is associated with receiving an award (Sieter, 2015; Meikle; 2016). Sherman et al. (2016) also found that receiving a 'like' on social media activates the same brain circuits that are stimulated when eating chocolate or winning money.

Focusing on adolescence, a period where the brain undergoes major developments and where brain areas associated with reward are thought to be sensitive (Sherman et al., 2016), questions arise about the effects

that social media may have on these developing brains. For example, can social media have a long-term impact on the activity in these sensitive areas? Psychology can help provide us with an understanding of this; research methods used in psychology and a psychologist's knowledge of brain and behaviour allow us to be able to study such salient topics.

Social media and mental health

Adolescence is a time where peer acceptance is vital; most teenagers regard the perceptions that their peers have of them as very important (Brown & Lohr, 1987). Perceptions and acceptance not only occur in the classroom, but now on social media as well. Gaining 'likes' on websites such as Facebook can reflect acceptance and positive perceptions by peers, which in turn can provide teenagers with a positive appraisal of themselves. The impact of acceptance on social media by others may not only have an impact on adolescents but also adults and even children (Fardouly et al., 2018; Pantic, 2014). Questions arise about what happens when we do not get the amount of 'likes' and/or positive comments that we want, or when we see someone else getting more. There can be a major impact on mental health when we

do not receive the positive appraisal that we were wanting or when we begin to compare ourselves to others on social media (Fardouly et al., 2018; Andreassen et al., 2017).

Websites such as Facebook and Instagram allow us to share a filtered and rose-tinted version of our lives; showing others only what we want to be seen. This means that we only see our friends', family's, celebrities' or strangers' positive news. A picture perfect image, or only the good aspects of someone's life; we are not seeing truthfulness on social media. The more time spent looking at these altered versions of reality may have an impact on a person's mental health, for example they may develop low self-esteem which can result in low mood, also experiencing anxiety and poor sleep (Fardouly et al., 2018; Andreassen, Pallesen & Griffiths., 2017; Woods & Scott., 2016). Fardouly et al. 2018 found that children aged 10 to 12 years reported better mental health when their parents reported having greater control over the amount of time their child spent on social media, and this relationship was mediated by children making fewer appearance comparisons on these websites. It is notable that this correlation may not only have been impacted by the comparisons to others on social media, as Best, Manktelow and Taylor (2014) have reported a series of harmful effects of social media such as increased exposure to harm, social isolation, depression and cyber-bullying.

As well as correlations with mental health problems such as anxiety and low mood (Woods & Scott, 2016), it is also noteworthy to consider the potential impact of social media and the use of screen technology in general, such as phones and tablets, on the development and use of social communication and interaction skills. Last year I had an interesting conversation with a paediatrician about the number of emerging cases that were being referred to Child and Adolescent Mental Health Services (CAMHS), where parents were reporting Autism Spectrum Condition (ASC) type symptoms. When assessment and formulation was completed,

it became apparent that these children experienced extensive periods of screen time every day which seemed to be affecting their social development. For example, they omitted to make eye contact or did not respond when their name was called as they were pre-occupied with their tablets. When parents reduced screen time for these children, they saw a reduction in the ASC type symptoms.

During childhood, social and emotional development begins, and for the large proportion of children who use technology/social media daily for extensive periods, this part of their development is occurring parallel to the use of this activity. When we communicate and interact socially, face-to-face with another person, we are using a range of social skills, such as eye contact and gesture, and perceiving a range of cues from the other person, such as facial expression, body language and tone of voice. These social skills and interpretative abilities begin to develop during childhood through to adolescence. When children are not communicating or interacting in the traditional way, i.e. face-to-face with another person, or when they spend a lot of time attaining to iPads/tablets, this may affect the development of their social abilities as they are not having as much time to practice these skills. When communication is done virtually via social media, these social skills are not needed. This may be the case for some pre-school children, as per my conversation with the CAMHS Paediatrician, though it is noted that when children and adolescents are in school, they would be expected to spend time away from these mediums where they may develop these skills. Interestingly, a recent Ofcom report found that a high proportion of young people, aged between 4 and 16 years, reported more of an interest in solitary screen time than they did in seeing their friends in real life (Ofcom, 2018). Face-to-face human interaction is vital for the development of social and emotional skills.

Social media: All bad?

Though much of the literature in this area depicts the negative psychological effects of digital technology use on children and adolescents, recent noteworthy literature has different conclusions. Orben and Przybylski (2019) claim that much of the research finding associations between digital technologies use and negative psychological effects are conducted by carrying out secondary analyses on large-scale social datasets. The problem with this method is that there are many ways of analysing the data leading to analytical flexibility. This level of freedom can produce an array of different and conflicting results, and potentially false positives. When Orben and Przybylski (2019) explored these methodological challenges and thoroughly examined three large-scale social datasets, the association between digital technology use and negative wellbeing of adolescents was small. This study highlights the need for more robust and comprehensive research methods to draw more accurate conclusions around the effects of living in a technological age.

The wider context and how psychology can help

Social media and screen time is a topic that is in its early days with regards to research into the effects that it may have. It is a topic that comes up considerably in CAMHS; a service which is inundated with referrals for mental health problems such as anxiety and low mood (Smith et al., 2018). Through psychological research and specialist formulation with patients, psychologists can begin to understand the impacts of social media and screen time to consider whether it may precipitate or perpetuate mental health problems or effect a young person's development. Knowledge of these effects may help to better inform health services, especially for children and young people. This may also assist in educating a wider audience as to the effects of social media so that we can all make more informed decisions with regards to social media use and screen time.

Correspondence

Rebecca Dyas

Research Assistant

University of Glasgow/ NHS GG&C

Email: Rebecca.dyas@glasgow.ac.uk

References

- Andreassen, C.S., Pallesen, S. & Griffiths, M.D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, 64, 287–293.
- Best, P., Manktelow, R. & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41, 27–36.
- Brown, B.B. & Lohr, M.J. (1987). Peer-group affiliation and adolescent self-esteem: An integration of ego-identity and symbolic-interaction theories. *Journal of Personality and Social Psychology*, 52(1), 47.
- Fardouly, J., Magson, N.R., Johnco, C.J., Oar, E.L. & Rapee, R.M. (2018). Parental control of the time preadolescents spend on social media: Links with preadolescents' social media appearance comparisons and mental health. *Journal of Youth and Adolescence*, 1–13.
- Meikle, J. (2012, 3 February). Twitter is harder to resist than cigarettes and alcohol, study finds. *The Guardian*.
- Orben, A. & Przybylski, A.K. (2019). The association between adolescent well-being and digital technology use. *Nature Human Behaviour*, 3, 173–182.
- Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 652–657.
- Seiter, C. (2016). The psychology of social media: The deep impulses that drive us online. <https://blog.bufferapp.com/psychology-of-social-media>. Last accessed: August.
- Sherman, L.E., Payton, A.A., Hernandez, L.M., Greenfield, P.M. & Dapretto, M. (2016). The power of the 'like' in adolescence: Effects of peer influence on neural and behavioral responses to social media. *Psychological Science*, 27(7), 1027–1035.
- Smith, J., Kyle, R.G., Daniel, B. & Hubbard, G. (2018). Patterns of referral and waiting times for specialist Child and Adolescent Mental Health Services. *Child and Adolescent Mental Health*, 23(1), 41–49.
- Ofcom (2018). Children and parents: Media use and attitudes report 2018 [online] Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0024/134907/Children-and-Parents-Media-Use-and-Attitudes-2018.pdf [Accessed 29 January 2019].
- Woods, H.C. & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, 51, 41–49.

To vaccinate or not to vaccinate: Child influenza vaccination in England

Louise E. Smith

Influenza is a common disease which causes considerable morbidity and mortality. In an attempt to decrease the morbidity and mortality associated with influenza, the influenza vaccine has been offered to children in England since 2013. However, uptake is low. Psychological factors, such as the perception that the vaccine causes adverse effects, negative vaccine beliefs and attitudes, lack of vaccine recommendation from healthcare providers, and perceived practical/logistical barriers to vaccination have been found to be associated with child influenza vaccine refusal in the UK. Public health communications and vaccine interventions should target these factors in order to increase vaccine uptake.

WHAT ARE the deadliest diseases? When asked, many will point to infectious diseases currently attracting the greatest media attention, such as the Ebola and Zika viruses. Others might consider diseases that perpetually plague the developing world, resulting in periodic charity appeals in the West (e.g. cholera or malaria). People would rarely include common seasonal influenza on their list of deadliest infectious diseases, yet seasonal influenza causes up to 650,000 deaths a year (World Health Organization, 2018a); a great many more than diseases which often attract considerably more attention. For example, influenza causes more deaths than breast cancer (627,000 in 2018) (World Health Organization, 2018b). This stark fact has led to a range of measures being introduced by governments around the world to combat influenza. One of them, child vaccination, has great potential.

Child influenza vaccination was introduced to the routine vaccine schedule in the 2013/2014 influenza season to limit the number of children who suffer from complications of influenza, prevent the spread of influenza and reduce morbidity and mortality among adults who may contract influenza from children. Children between the ages

of 2 and 16 in the UK are vaccinated using a nasal spray (Fluenz Tetra Live Attenuated Influenza Vaccine; LAIV). This is different to the inactivated injected vaccines commonly used in adults, and was chosen due to its increased efficacy in children. Initially, only children aged 2 and 3 were offered vaccination. Since then, the vaccine has been offered to increasingly older children each year, with children aged 2 to 10 years being offered the vaccine in the 2018/2019 influenza season. In the UK, the child influenza vaccine is offered for free, with pre-school age children being vaccinated at general practice (GP) surgeries, and school-age children being vaccinated in school.

Uptake of the influenza vaccine is notably worse than many other routine child vaccinations such as measles, mumps and rubella (MMR), for which uptake tends to be around 90 to 95 per cent (Screening and Immunisations Team & NHS Digital, 2016). To date, uptake of the child influenza vaccine has been approximately 30 to 40 per cent of children aged 2 to 4 years, and 53 to 58 per cent of primary school-aged children (Public Health England, 2014, 2015, 2016, 2017), while uptake in the 2017/2018 season was somewhat higher (Public Health England, 2018) (see Table 1).

Table 1: Percentage of children vaccinated with the child influenza vaccine across ages and influenza seasons in England

Year	Child age in years (school year)						
	2	3	4 (R)	5 (1)	6 (2)	7 (3)	8 (4)
2013/2014 ¹	42.6	39.5	N/A	N/A	N/A	N/A	N/A
2014/2015 ²	38.5	41.3	32.9	N/A	N/A	N/A	N/A
2015/2016 ³	35.4	37.7	30.0	54.4	52.9	N/A	N/A
2016/2017 ⁴	38.9	41.5	33.9	57.6	55.4	53.3	N/A
2017/2018 ⁵	42.8	44.2	62.2*	61.0	60.4	57.6	55.8

Note: ¹(Public Health England, 2014); ²(Public Health England, 2015); ³(Public Health England, 2016); ⁴(Public Health England, 2017); ⁵(Public Health England, 2018); R = Reception; N/A = children of this age were not offered the vaccine; *These children were vaccinated in school

Factors associated with child vaccination

How can we increase uptake of the child influenza vaccine? To answer this, we must first identify factors associated with vaccination refusal. While in developing countries, lack of access to vaccination and family characteristics such as low education, literacy and socio-economic status present some of the key reasons why children are not vaccinated (Rainey et al., 2011), in developed countries, parents often make conscious decisions not to use readily available vaccines. Although personal and clinical characteristics associated with vaccine refusal may help identify target groups for more specific or intensive communications, psychological factors associated with vaccine refusal can help inform the *content* of communications and vaccine interventions.

Reviews of factors associated with child vaccination identify a range of psychological factors associated with vaccine uptake. For example, the factor most consistently associated with vaccination refusal is the perception that the vaccine causes side effects (e.g. Smith, Amlôt, Weinman, Yiend, & Rubin, 2017). This is a particular problem for the child influenza vaccine as children must be vaccinated each year and clinical trial data indicates that almost 50 per cent will report at least

one side-effect (European Medicines Agency, 2013). Other factors associated with vaccination refusal include a more benign appraisal of the illness; negative beliefs and attitudes about vaccinations; not receiving a vaccine recommendation from a healthcare worker; perceiving practical or logistical barriers associated with vaccination such as the time or location of vaccination being inconvenient; lack of knowledge about the illness and vaccination; and social influences such as lack of perceived approval of vaccination by others (Smith et al., 2017).

Factors associated with child influenza vaccination in the UK

Few studies have investigated psychological factors specific to uptake of the child influenza vaccine in England. Notably, Smith, Webster et al. (2017) conducted a large-scale investigation to assess parental attitudes to the child influenza vaccine since its introduction to the UK. In this study, 52.8 per cent of parents of children eligible for the vaccine indicated that they had vaccinated their child in the 2015/2016 season, similar to national estimates for that year (Public Health England, 2016). Of the parents who vaccinated their child, 41 per cent perceived acute side-effects, in line with clinical trial data (European Medicines Agency, 2013).

Previous child influenza vaccination; perceptions about the risk associated with influenza, including severity of influenza and the child's vulnerability; believing the vaccine to be an effective way of reducing the risk of influenza; and receiving a recommendation from a health professional that the child should be vaccinated were associated with vaccine uptake. Factors relating to possible future adverse events caused by the vaccine, such as it causing short-term side-effects, long-term health problems and overloading the child's immune system, were associated with vaccination refusal, as was perceiving the vaccine to be unsafe. These factors were also strongly associated with intention to vaccinate the child in 2016/2017. Furthermore, observing side-effects from vaccination in 2015/2016 was associated with reduced re-vaccination intention for the 2016/2017 influenza season.

Two other studies have also investigated psychological factors associated with uptake of the child influenza vaccine in the UK, finding similar results. The first investigated the association between parental beliefs and attitudes towards vaccination using the 'vaccine attitudes examination' scale' and uptake of the child influenza vaccine in the UK 'in the past year' (Wood et al., 2018). This study found that parents of children who had not been vaccinated for influenza in the last 12 months had more negative attitudes than parents who did vaccinate their child; in particular parents were most concerned about the unforeseen future effects of vaccination. The second study employed qualitative methodology to investigate factors associated with parental hesitancy to vaccinate their child (Paterson et al., 2018). This study found that concern about side-effects of the vaccine, the effectiveness of the vaccine, suspicions about others making money from vaccination and mistrust of healthcare services were among the most frequently cited reasons for vaccine refusal.

Taken together, these studies identify a number of psychological factors associ-

ated with child influenza vaccination in the UK. While these studies were able to identify factors associated with child influenza vaccine uptake in the UK, the cross-sectional nature of the studies limits interpretation of the results. Longitudinal studies, which can identify factors that predict future uptake of the child influenza vaccine should now be conducted. However, the fact that studies identified congruent results, provides support for the perception that these factors play an important role in the uptake of the child influenza vaccine in the UK.

Recommendations

Based on results of the aforementioned studies, a number of recommendations for future public health communications such as official leaflets published by Public Health England, and vaccine interventions aimed at increasing vaccine uptake can be made. To be maximally effective, messages to parents should target perceptions that are both amenable to change and strongly associated with vaccine uptake. Studies highlight the importance that parents place on perceiving side-effects from vaccination, thus communications should aim to reduce the parental perception that the vaccine causes adverse effects. Furthermore, negative vaccine beliefs and attitudes associated with vaccine refusal, such as believing that the vaccine is ineffective and unsafe, should also be targeted by vaccine communications and interventions.

The perceived practical and logistical barriers to vaccination should also be considered. For example, recommendations for the location of vaccination were changed in 2017/2018 and children aged four were offered vaccination in school instead of the GP surgery. Uptake rates for children vaccinated in school are consistently higher than those for children vaccinated at a GP surgery, most attributable to the relative ease this option provides for busy parents. For parents of children under four where primary care vaccination is the only option, making this process as easy as possible, for example by holding evening and weekend vaccination clinics, will

likely help increase vaccination rates. While all healthcare providers are encouraged to provide strong vaccine recommendations, Smith et al. (2017) found that almost half of parents with vaccine-eligible children did not report having had a health professional recommend the vaccination. In light of this, healthcare providers should ensure that they send personalised invitations to parents of vaccine-eligible children, as indicated by best practice guidelines.

The aforementioned recommendations suggested to increase uptake of the child influenza vaccine in the UK are in line with a recent review of the literature on vaccine interventions. The review found that vaccine uptake increased the most after using interventions which induced positive vaccine beliefs; influenced social norms associated with vaccination; reduced barriers to motivation and facilitated action through reminders and prompts (Brewer et al., 2017).

Conclusions

Vaccination is one of the most successful

interventions in modern medicine. However, uptake of the child influenza vaccine in England has been consistently low. Increasing child vaccination could lead to a considerable reduction in morbidity and mortality associated with influenza. Although a causal link cannot yet be definitively established, past behaviour, beliefs, attitudes and social influences are thought to affect child influenza vaccine uptake. In the UK alone, 16 children died from influenza in the 2017/2018 season (Public Health England, 2018). Implementing recommendations based on factors associated with vaccine uptake could help increase uptake of the child influenza vaccine and, ultimately, save lives.

Correspondence

Louise E. Smith

PhD candidate

Department of Psychological Medicine,
King's College London

Email: louise.7.smith@kcl.ac.uk

References

- Brewer, N.T., Chapman, G.B., Rothman, A.J., Leask, J. & Kempe, A. (2017). Increasing vaccination: Putting psychological science into action. *Psychol Sci Public Interest*, 18(3), 149–207. doi:10.1177/1529100618760521
- European Medicines Agency. (2013). *Assessment report. Fluenza tetra, Common name: influenza vaccine (live attenuated, nasal)*. London: 2013. Retrieved from: https://www.ema.europa.eu/documents/assessment-report/fluenz-tetra-epar-public-assessment-report_en.pdf. Accessed 15 October 2017.
- Paterson, P., Chantler, T. & Larson, H.J. (2018). Reasons for non-vaccination: Parental vaccine hesitancy and the childhood influenza vaccination school pilot programme in England. *Vaccine*, 36(36), 5397–5401.
- Public Health England. (2014). *Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2013 to 2014*. London: 2014. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325203/Flu_annual_report_June_2014.pdf. Accessed 15 October 2017.
- Public Health England. (2015). *Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2014 to 2015*. London: 2015. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/429617/Annualreport_March2015_ver4.pdf. Accessed 15 October 2017.
- Public Health England. (2016). *Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2015 to 2016*. London: 2016. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/526405/Flu_Annual_Report_2015_2016.pdf. Accessed 15 October 2017.
- Public Health England. (2017). *Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2016 to 2017*. London: 2017. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/613493/Surveillance_of_influenza_and_other_respiratory_viruses_in_the_UK_2016_to_2017.pdf. Accessed 14 September 2018.

- Public Health England. (2018). *Surveillance of influenza and other respiratory viruses in the United Kingdom: winter 2017 to 2018*. London: 2018. Retrieved from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740606/Surveillance_of_influenza_and_other_respiratory_viruses_in_the_UK_2017_to_2018.pdf. Accessed 15 November 2018.
- Rainey, J.J., Watkins, M., Ryman, T.K., Sandhu, P., Bo, A. & Banerjee, K. (2011). Reasons related to non-vaccination and under-vaccination of children in low and middle income countries: Findings from a systematic review of the published literature, 1999–2009. *Vaccine*, 29(46), 8215–8221. doi:10.1016/j.vaccine.2011.08.096
- Screening and Immunisations Team, & NHS Digital. (2016) NHS Immunisation Statistics: England, 2015-16. Retrieved from: <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-immunisation-statistics/nhs-immunisation-statistics-england-2015-16>. Accessed 5 October 2017.
- Smith, L.E., Amlôt, R., Weinman, J., Yiend, J. & Rubin, G.J. (2017). A systematic review of factors affecting vaccine uptake in young children. *Vaccine*, 35(45), 6059–6069. doi:<https://doi.org/10.1016/j.vaccine.2017.09.046>
- Smith, L.E., Webster, R.K., Weinman, J., Amlôt, R., Yiend, J. & Rubin, G.J. (2017). Psychological factors associated with uptake of the childhood influenza vaccine and perception of post-vaccination side-effects: A cross-sectional survey in England. *Vaccine*, 35(15), 1936-1945. doi:10.1016/j.vaccine.2017.02.031
- Wood, L., Smith, M., Miller, C.B. & O'Carroll, R.E. (2018). The Internal Consistency and Validity of the Vaccination Attitudes Examination Scale: A Replication Study. *Ann Behav Med*. doi:10.1093/abm/kay043
- World Health Organization. (2018a, January 2018). Influenza (Seasonal). *Fact Sheet*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs211/en/>. Accessed 15 November 2018.
- World Health Organization. (2018b). *Cancer*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs297/en/>. Accessed 15 November 2018.

COST Action: The Comparative Analysis of Conspiracy Theories Canterbury Training School Review

Darel Cookson

The Comparative Analysis of Conspiracy Theories Action's 2nd Training School took place from 30 July to 3 August 2018 at the University of Kent in Canterbury. The Training School focused on the use of quantitative methods in conspiracy theory orientated research. Overall, the Training School made for an extremely enjoyable and challenging week, giving me the opportunity to further develop my knowledge of conspiracy theory research and collaborate with a range of researchers working within this field.

THIS SUMMER, I was fortunate enough to attend a Training School at the University of Kent, Canterbury, organised by the COST Action Group titled –‘The Comparative Analysis of Conspiracy Theories’. COST is a European framework supporting and facilitating cross-discipline research across the sciences, humanities and field of technology. COST is comprised of different Actions. These Actions are multi-disciplinary networks, open to researchers and stakeholders, which are managed via a diverse range of communicative and collaborative methodologies, including workshops, conferences and Training Schools. Over the last decade, a multitude of research exploring belief in conspiracy theories has been published within the domains of social and political psychology, history, economics and sociology. Subsequently, the significant role conspiracy theories have within society has begun to gain greater recognition. Through the Comparative Analysis of Conspiracy Theories Action, COST is helping a network of academics to study this important subject in a more collaborative and holistic way.

My PhD research consists of an investigation into belief in conspiracy theories from a social psychological perspective. More

specifically, I am exploring how we can use theories of why people believe in conspiracy theories to develop interventions which act to reduce harmful beliefs. I am employing quantitative methodologies within my PhD research; therefore the COST Training School provided an invaluable opportunity to advance my understanding of the research area and work with pioneering researchers within the conspiracy theory field.

The Training School ran from 9:00am until 5:00pm Monday to Friday. The programme was provided in advance, along with a reading list, and was jam-packed with a variety of interactive sessions. We benefited from the flexible structure of the Training School throughout the week, attending a mixture of seminars from experts in the field and group-work sessions with peers as well as challenging discussions and debates. It was particularly useful to have structure to each day whilst retaining enough flexibility to develop our individual interests and research ideas. We were encouraged to work in small groups, alongside colleagues with similar research interests, but who were perhaps from different disciplines or theoretical perspectives. This was a great advantage of the Training School setup as it allowed me to collaborate with, i) economists who

shared an interest in potential consequences of climate change conspiracy beliefs and ii) political psychologists who were passionate about understanding the role of conspiracy beliefs in current politics. I found viewing research topics, which I thought I knew well, from these diverse perspectives to be very refreshing, providing more depth and further dimensions to my understanding of conspiracy theories.

Each of the Training School organisers were experts in the field of conspiracy theories. Their work has been crucial during the development of my current research ideas, therefore I felt slightly daunted at the start of the week. However, after the first seminar, delivered by Professor Douglas titled, 'An Introduction to the Psychology of Conspiracy Theories', I was ready to work. This session was perfectly placed to suppress my initial nerves, as it felt reassuring to have an overview of research I was familiar with, while the theoretical framework applied to the multitude of studies was inspiring. In particular, the talk allowed me to understand and visualise where my work can expand the knowledge base of the field, increasing my confidence as the novelty and value of my research was confirmed. Professor Sutton then led a seminar discussing the measurement of conspiracy beliefs, detailing some of the advantages and disadvantages of using survey methodologies. This was particularly relevant to my work and research interests as I am utilising survey methodologies in my research. Consequently, the session enabled me to take a step back and re-evaluate the utility of this approach.

As the week continued we had seminars from Dr Nefes, Dr Cichocka, Dr Krouwel, Dr van-Prooijen and Professor Uscinski. Dr Nefes discussed his recent research conducted in Turkey and Taiwan, utilising Rational Choice Theory to demonstrate how conspiratorial theorising can be used rationally in line with people's political opinions and perceptions of threat. Dr Nefes is a Sociologist, thus it was interesting to develop an understanding of the influence of conspiracy beliefs on

politics and vice-versa from a sociological perspective. Dr Cichocka's session focused on conspiracy beliefs and intergroup relations. I found this session particularly helpful because of the attention paid to the role of theory development in the study of conspiracy belief. Discussions centred on the role of theory in developing mediation and moderation models, which was extremely useful in expanding and enhancing my own research ideas.

Dr Krouwel's session centred on European politics and conspiracy beliefs. Discussions evolved around comparisons between conspiracy beliefs affiliated with the political left versus the political right. Conversation then progressed to comparisons of conspiracy belief between political moderates and political extremes, where recent research has suggested a quadratic relationship between conspiracy belief and political orientation. Towards the end of the week we had the privilege of listening to Dr van-Prooijen discuss his recent paper regarding the application of evolutionary psychology to explain the origins of conspiracy beliefs. This novel perspective is fascinating and bred some really innovative and compelling ideas in the discussions that followed. The final seminar, led by Professor Uscinski, focused on the politics of conspiracy theories in the USA. This seminar was useful and interesting, as we developed our knowledge of the American political backdrop, discussing the role of partisanship in shaping conspiracy beliefs.

Overall, the Training School was extremely productive, helping me to develop and refine my research ideas. The focus on contemporary research within the conspiracy field, from a variety of disciplines, has enhanced my understanding and knowledge of the research domain. Moreover, the attention the Training School drew towards methodological issues within the field created an excellent foundation for lively debate, providing a refreshing outlook upon my current studies. However, the key highlight for me was the opportunity to collaborate with other postgraduate students, discussing

and cultivating our research ideas. I am extremely grateful to the COST research group and Professor Douglas for organising the summer school. I would recommend attending Training Schools to other post-graduate students, particularly at the beginning of their studies, as the feedback you can receive on your research ideas is invaluable. I am lucky enough to have a supervisor who is very active in communicating these opportunities to me, but another resource which might be helpful if you are looking to find further training opportunities is Twitter.

Thank you again to all the colleagues who I worked with during the summer school and to COST for providing an invaluable opportunity within the conspiracy theory research field.

Correspondence

Darel Cookson

PhD Student

Department of Psychology,

Staffordshire University

Email: Darel.cookson@research.staffs.ac.uk

Improve your statistical inferences with this one neat trick: A brief review of the Improving your statistical inferences MOOC

Oliver Clark

This article is a brief review of an excellent free Massive Open Online Course that guides students through the various ways that they can improve research questions and make more informed choices about their choices of statistical tests. The MOOC includes an introduction to simulation and data-analysis using the R programming language, meta-science, open practices, and alternative statistical frameworks (e.g. Likelihood Principal, Bayes Theorem). Although it is predominantly aimed at those using quantitative methodology, it has useful modules on philosophy of science and theory building which may be interesting for qualitative researchers.

WHEN I was appointed as the PsyPAG rep for the Mathematical, Statistical, and Computing Section I intended to write a mega-article for the *Quarterly* on power analysis using computer simulations and sequential analysis, which allows you to evaluate your data prior to finishing collection. This draft hit 2000 words before I had even written a line of code¹. So instead, I have opted to review a Massive Open Online Course which covers everything I wanted to illustrate, and more.

Statistics courses in psychology degrees typically cover the so called Frequentist perspective by default². I was taught about significance tests and the sovereignty of p -values. Although these are entirely appropriate for many research questions, after two years I simply became really good at spotting asterisks in SPSS outputs. Moreover, if there were no asterisks, I would hammer my data until one appeared. This was probably a bad habit picked up both from being a lazy student³ and conflating statistical signifi-

cance with good grades⁴. However, I am not the only one to engage in this kind of strategy as there is evidence to suggest that this was a common practice (John et al., 2012).

Somehow I actually started enjoying statistics about three years ago. As I read more, it started to dawn on me that I was ill-prepared for a career that required running research projects and making inferences from data. In the first year of my PhD I decided to rectify this, and enrolled on a Massive Open Online Course (or MOOC), which I heard about on the Everything Hertz Podcast.

MOOCs are a great way to learn new skills and start your journey towards a particular specialism. They are essentially university modules delivered by lecturers online. Within the current article I will describe and review the free course 'Improving your statistical inferences' (Lakens, n.d.), which is delivered by self-professed '20% Statistician', Daniël Lakens from Technical University Eindhoven in the Netherlands.

¹ I may do a blog on these topics though.

² This may have changed or be changing.

³ I was.

⁴ Alas, in honesty, I was not that interested in statistics either!

Content

Broadly speaking, the MOOC covers three major areas: theory, methodology, and philosophy. Critically, it is not a stats course, although it does provide a balanced view of a variety of statistical theories. It also provides an introduction to the R programming language – meaning SPSS is not needed, and it will help learners with code-phobia develop a new skill!

To start with, the course introduces the three major statistical theories: Frequentism, Likelihood Principal, and Bayesian methods. From these foundations, a broader structure is built as methods are introduced that allow a wider range of questions to be addressed. For instance, a method for assessing evidence of a null hypothesis (not possible using standard tests) is presented which can be run using a simple spreadsheet. It is immediately obvious how this could be useful to research students! Rather than kicking my Master's thesis data, I could have simply stated with reasonable confidence that the null was more likely. There is more discussion to be had than 'we found nothing!', or 'as predicted, once age, gender, and shoe size were covaried, a there was a significant effect in two of the four stimuli'⁵.

Next, the course covers methodological issues such as chances of being wrong, and how these can be inflated by sample size, multiple comparisons, and even 'peeking' at your data prior to reaching a target sample size. Aside from statistics, there are also practical introductions to the R programming language and the Open Science movement (including a very fun pre-registration assignment).

Delivery

The MOOC is delivered over 8 weeks⁶, each with around 4 modules, using a mixture of accessible and humorous video lectures (which are also transcribed in English and Chinese). Each module includes fascinating

interviews with experts in the field; hand-outs; and assignments. It is self-contained, but also has a list of recommended articles and books for each module.

Class activities often involve using simulations to run tests thousands of times in a few seconds. For instance, in one module a short script is provided that simulates 100 *t*-tests and plots the *p*-values. The learner is invited to change the means and sample sizes to explore how these affect long run statistical significance. I found this approach to be far more intuitive and informative than staring at equations or imagining loaded dice rolls!

In addition to the course materials, there is also a discussion forum to ask questions, which may be answered by the instructor or other learners.

Each week has a test, and there is a final exam on the last week. There is an estimated time commitment of three hours per week, although this is an average – some weeks will be shorter and some longer. I found it really important to set time aside each week to do this (a few hours on a Sunday evening), and the time simply flew by.

Overall benefits

The Improving your statistical inferences MOOC is an excellent supplement to post-graduate or undergraduate training, especially when planning empirical research for your thesis or dissertation. Although, the course does not cover statistics *per se*, meaning an understanding of statistics in the social sciences at the undergraduate level is necessary for some of the modules. The module does cover a variety of issues surrounding the use of statistics (a field known as meta-science), providing the opportunity to gain a critical understanding of the statistical methodologies used by psychologists on a daily basis.

Whilst undertaking the course I started to think about the types of questions to ask during my studies, and how each family of

⁵ Nearly a true story.

⁶ Technically you could binge it like a Netflix boxset, but I would not recommend this.

statistical tests may be used for a particular research question. Power was just starting to be discussed when I did my Masters in 2007 – before that, shortcuts like ‘16 participants per cell’ were used to plan sample sizes. This course will help you engage with sample size planning. Importantly, the MOOC gave me a different perspective on interpreting both non-significant and significant results from studies. I would have found this useful during the late nights of bashing my keyboard with a shoe until I saw stars.

Whilst the MOOC is informative, it is important to state that it is not a panacea that will cure all of your research ailments. It is more like a concise road map to better practice. The scale is large and it will not tell you every little detail, but it will tell you where the cool landmarks are, which roads to avoid, and help you plan the route that best suits you as a researcher.

Correspondence

Oliver Clark

PhD Researcher

Department of Psychology, Manchester
Metropolitan University

E-mail: oliver.clark3@stu.mmu.ac.uk

References

- Heathers, J. & Quintana, D.S. (2017). ‘42: Some of My Best Friends Are Bayesians (with Daniel Lakens).’ Everything Hertz, SoundCloud, 21 April. 2017, Retrieved 25 January 2019 from <https://soundcloud.com/everything-hertz/42-some-of-my-best-friends-are-bayesians-with-daniel-lakens>
- John, L.K., Loewenstein, G. & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth telling. *Psychological science*, 23(5), 524–532.
- Lakens, D. (n.d.). Improving your statistical inferences. Retrieved 19 December 2018 from www.coursera.org/learn/statistical-inferences

PsyPAG Annual Conference 2018

Angela Medvedeva

The PsyPAG 2018 Annual Conference was held at the University of Huddersfield, 25–27 July, organised by PsyPAG's former Information Officer Becky Scott and the brilliant conference committee. In this conference review, I provide an overview of the highlights of the three-day conference, including keynote speakers, social events, workshops, and the symposium that hosted the winner of the PhD oral presentation award.

AFTER I first attended the PsyPAG conference last year, I knew I wanted to return this year and reconnect with the postgraduate community. Many others would agree with me: @PsyPAG2018 has over 2000 followers, with hundreds of tweets in discussion of #PsyPAG2018. Organised by postgraduate students, this extraordinary conference provides a supportive space for delegates to build valuable relationships with peers and develop a successful early career. This year I attended the conference for the second time, thanks to one of PsyPAG's generous conference bursaries.

The PsyPAG 2018 programme included three exciting social events in which delegates could become better acquainted, six symposia and four keynotes of excellent research, and three sessions of exceptional workshops.

The PsyPAG conference was brimming with every individual's achievements, research, and unique style. In addition to BPS trainees, presenters included Masters and PhD students from more than 42 different universities. There was something for everyone, with presentations from nearly every division: cognitive, developmental, health, clinical, educational, sport, forensic, social, biological, transpersonal, occupational, and qualitative psychology. The conference provided a network for nearly every kind of psychologist and the BPS section representatives provided great assistance, speaking to delegates about their

divisions and sharing treats (like the latest issue of *The Psychologist*).

Throughout PsyPAG 2018 we had a chance to hear outstanding keynotes and award speeches, from flourishing early-career researchers to established professors. Professor Viv Burr set the tone for a remarkable conference with a critical approach to mainstream psychology: social constructionism. To explain how this approach would be useful in practice, she included a fascinating breadth of examples from history, philosophy, physical science, education policy, and clinical psychology.

Professor Nigel King provided a memorable introduction to Huddersfield and a glimpse into his research on reactions to natural environments, with potential applications for individualised mindfulness interventions. Demonstrating one of the tasks assigned to participants, he even encouraged us, the audience, to reflect on our own perceptions of different landscapes.

Dr Claire Wilson, a PsyPAG alumna, led us through her bright early career, from her PhD research in education to her current interests in adult sexting behaviour. She even took the time to discuss life after the PhD and to offer practical advice to postgraduates seeking to find jobs in academia.

Professor Daniel Boduszek presented a new, well-designed model of the profile of a psychopath, asking the audience to define abstract terms such as 'love' to understand how a psychopath thinks. His presentation

was captivating, witty, and personal, filled with stories of how the profile applied to different people (e.g. prison inmates, CEOs, university students).

This year in particular the spotlight shined on open science, and delegates engaged in a great discussion (#openpsypag on Twitter), spurred especially by the History and Philosophy of Psychology symposium and the Open Science workshop. PhD presentation winner Oliver Clark and workshop host James Bartlett were exemplary role models, bravely posting their slides and materials as an Open Science Framework (OSF) page (see them here: <https://osf.io/62jgq/>; <https://osf.io/w82ms/>).

The History and Philosophy of Psychology symposium, kindly sponsored by the corresponding BPS section, was initially intriguing when the names of the talks were announced and my presentation was included. However, I did not anticipate that the presentations would attract so much interest, complement each other so well, and facilitate a discussion that would continue for the rest of the conference. I was nervous about being the first presenter in such an impressive symposium, but I found a surprising amount of interest and support for my discussion of personal experience with replication failure. I argued that as early-career researchers, we can triumph against null results with good research practices and the support of the OSF to publish these results. Having mentioned meta-analyses as a tool to examine replication success in a field, I found the next talk especially relevant. Audrey Linden from Northumbria University demonstrated the important role of questionable research practices in meta-analyses. I found her talk useful for me, to better design future meta-analyses, and for those in the audience who reviewed or evaluated meta-analyses for their research. PhD presentation winner Oliver Clark from Manchester Metropolitan University delved deeper into questionable research practices and swept the audience into an open science movement, outlining the steps to forming a supportive, postgrad-

uate community with the help of existing networks. He was one of many great examples in delivering an engaging, informative, and entertaining presentation, and I was grateful for the opportunity to learn from him. The delegates shared fascinating comments with us, the presenters, about open science, statistics, and philosophy, even after the symposium. It was valuable for me to be involved and explore these issues more in-depth, with helpful developments for future research.

In addition to the range of presentations, the workshops provided an excellent opportunity to learn about new areas of research, overcome challenges in the PhD, and develop skills. Workshops such as virtual reality and psychogeography captured our interest and introduced us to new and interesting areas of research. Others were designed specifically for PhD students and helped us reflect on the transition to the PhD or prepare for the viva. This was a great year in PsyPAG for learning specific qualitative skills, with workshops on discourse analysis, grounded theory, and Pictor technique. In addition, we could practice developing other important skills such as writing grants, demonstrating research impact, and following open science practices. The workshops I attended were informative, engaging, and practical. There were clear steps, opportunities to practice skills, and useful examples (including some from the presenter's own work).

Finally, the social events included two fun nights in the pub, including a captivating session of Psychology in the Pub with Dr Sarah Daly and a competitive pub quiz with some creative team names and efforts. Dr Daly, a recent PhD graduate herself, embraced the new format and shared her research on visibility and appearance in bisexual identity. In addition, she offered inspiring encouragement for PhD students: we will all finish the PhD eventually, no matter how difficult it seems. Finally, the usually spectacular conference dinner with a three-course meal and dance was held in the impressive John Smith's Stadium. Throughout the conference we were treated

to delicious food and opportunities to converse in informal settings, which further enabled delegates to form professional networks, exchange ideas, and develop friendships.

Overall, PsyPAG 2018 amazed, inspired, and pushed us out of our comfort zones. PsyPAG Chair Holly Walton summarised it well in her closing remarks: the judges had an especially difficult task this year of selecting the best presentations for each division because of the high-quality.

New and returning delegates can look forward to the PsyPAG conference at Sheffield Hallam University next year. Every year there are bursaries available for the PsyPAG conference and calls for posters, workshops, or oral presentations. It is a unique experience to meet postgraduates at different

stages of the process – just starting, writing up, submitting, or applying for post-docs or lectureships. There are always opportunities to be part of the organisation and develop, from navigating the peer-reviewed process with *PsyPAG Quarterly* to learning what it means to be on a committee and organise activities. PsyPAG encourage excellence in postgraduate activity and inspire with their dedicated representatives and award-winning researchers. This truly is an organisation for postgraduates by postgraduates.

Correspondence

Angela Medvedeva

PhD Student

Psychology Department, Kingston University

Email: a.medvedeva@kingston.ac.uk

Save the date!

The 35th Annual PsyPAG Conference is scheduled to take place at Sheffield Hallam University, 23–26 July 2019. For updates, follow @PsyPAG2019 on Twitter.

Dates for your Diary

Conferences

18 June 2019

Division of Forensic Psychology Annual Conference, Liverpool

4 July 2019

Psychology of Sexualities Annual Conference, London

10 July 2019

Psychology of Woman & Equalities Section Annual Conference, Windsor

28 August 2019

Social Psychology Section Annual Conference, York

Workshops

28 June 2019

Organisational compassion, Liverpool

8 July 2019

The heartfulness project, London

19 July 2019

The role of psychologists responding to youth suicide in schools, London

Talks

20 June 2019

FIT: Forensic Interest in Trauma meetup, Belfast

25 June 2019

Psychology in the pub, Manchester

The BPS website has a full list of BPS events at www.bps.org.uk/events

PsyPAG Committee 2018/2019

Position	Currently held by	Due for re-election
Core Committee Members: corecommittee@psypag.co.uk		
Chair	Holly Walton chair@psypag.co.uk	2019
Treasurer	Benjamin Butterworth treasurer@psypag.co.uk (For claim forms: payments@psypag.co.uk)	2021
Vice Chair	Catherine Talbot vicechair@psypag.co.uk	2020
Communications Officer	Olly Robertson commsofficer@psypag.co.uk	2020
Information Officer	Oliver Clark info@psypag.co.uk	2021
Quarterly Editors: quarterly@psypag.co.uk		
Claire Melia c.r.melia@keele.ac.uk		2019
Charlotte Scott C.Scott3@lboro.ac.uk		2019
Josephine Urquhart jau2@st-andrews.ac.uk		2019
Alex Lloyd alex.lloyd.2018@rhul.ac.uk		2020
Division Representatives		
Division of Clinical Psychology	Amy Pritchard A.J.PRITCHARD.967181@swansea.ac.uk	2020
Division of Counselling Psychology	Fraser Smith FSMITH30@caledonian.ac.uk	2019
Division of Educational and Child Psychology	Ramona Rusu 1301642@buckingham.ac.uk	2019
Division for Academics, Researchers and Teachers in Psychology	Ryan Gamble gambler@cardiff.ac.uk	2019
Division of Forensic Psychology	Oliver Merry oliver.merry@shu.ac.uk	2019
Division of Health Psychology	Liam Knox Lik2@aber.ac.uk	2019
Division of Neuropsychology	Michelle Newman Michelle.Newman.2@city.ac.uk	2020

Position	Currently held by	Due for re-election
Division Representatives (Contd.)		
Division of Occupational Psychology	Louise Bowen BowenL7@cardiff.ac.uk	2020
Division of Sport and Exercise Psychology	Dawn-Marie Armstrong dawnmarie.r.armstrong@gmail.com	2020
Section Representatives		
Cognitive Psychology Section	Joanne Eaves J.Eaves@lboro.ac.uk	2019
Consciousness and Experiential Psychology Section	Alex Wilson Alex.Wilson@northampton.ac.uk	2020
Developmental Psychology Section	Rachel Jane Nesbit Rachel.Nesbit.2012@live.rhul.ac.uk	2019
History and Philosophy of Psychology Section	Mirabel Pelton peltonm@uni.coventry.ac.uk	2019
Psychology of Sexualities Section	Maya A. Al-Khouja Al-KhoujaMA@cardiff.ac.uk	2020
Mathematical, Statistical and Computing Section	Oliver James Clarke oliver.clark3@stu.mmu.ac.uk	2020
Psychobiology Section	Hannah Avery hannah.l.avery@northumbria.ac.uk	2019
Psychology of Education Section	Scott Orr scott.orr@strath.ac.uk	2019
Psychology of Women and Equalities Section	Vacant	
Psychotherapy Section	Nicola McGuire n.mcguire.1@research.gla.ac.uk	2020
Qualitative Methods Section	Candice Whitaker C.M.Whitaker@Leedsbeckett.ac.uk	2020
Social Psychology Section	Darel Cookson darel.cookson@research.staffs.ac.uk	2020
Transpersonal Psychology Section	Alex Wilson Alex.Wilson@northampton.ac.uk	2020
Special Group in Coaching Psychology	Natalie Lancer natalie.lancer@gmail.com	2019
Community Psychology Section	Michelle Jamieson m.jamieson.2@research.gla.ac.uk	2020
Crisis, Disaster and Trauma Section	Sara Nicole Gardener sgardn07@mail.bb.k.ac.uk	2021

Position	Currently held by	Due for re-election
Branch Representatives		
North East of England Branch	Jennifer Deane J.Deane2@newcastle.ac.uk	2020
East of England Branch	Jennifer Coe Jennifer.Coe@uos.ac.uk	2020
East Midlands Branch	Charlotte Scott C.Scott3@lboro.ac.uk	2019
North West of England Branch	Ann-Kathrin Johnen Johnena@hope.ac.uk	2019
Northern Ireland Branch	Clare Howie chowie02@qub.ac.uk	2020
Scottish Branch	Benjamin Butterworth benjamin.butterworth@gcu.ac.uk	2020
South West of England Branch	Vacant	
Welsh Branch	Liam Knox Lik2@aber.ac.uk	2019
Wessex Branch	Brandon May brandon.may@port.ac.uk	2020
West Midlands Branch	Kristina Newman newmankl@aston.ac.uk	2020
London and Home Counties Branch	Rose Turner R.turner@kingston.ac.uk	2019
Board Representatives		
Ethics	Simon Ashe S.Ashe@shu.ac.uk	2019
Research Board (Chair)	Holly Walton holly.walton.14@ucl.ac.uk	2019
Other Committees		
Standing Conference Committee	Olly Robertson O.M.Robertson@keele.ac.uk	2019
Undergraduate Liaison Officer	Madeleine Pownall madeleine.pownall@outlook.com	2020



PsyPAG Conference 2019: 23rd-26th July

Delegate Fees

	PHD	Masters
Early Bird - Full Registration:	£66	£60
2-day pass:	£50	£40
1-day pass:	£25	£20

Social Events

- Skeptics on Campus - 23rd July (free)
- Sports day/It's a Knockout - 24th July
- Conference Dinner - 25th July

**Sheffield
Hallam
University**



@PsyPAG2019



PsyPAGHallamConference
@shu.ac.uk

June 2019 call for applications to the PsyPAG Workshop Fund

The **Psychology Postgraduate Affairs Group (PsyPAG)** are now accepting applications to host workshops for postgraduates. Previous workshops include: 'Building effective dissemination processes', 'Exploring culture and experience: Choosing methodologies in qualitative research' and 'Books, burnout and balance'.

Applying for workshop funding is valuable experience:

- It shows employers that you are able to use your initiative, budget, negotiate and plan.
- It fills a gap in your own training needs and benefits others at the same time.
- It builds your confidence in organising and chairing events.
- It gives you the opportunity to network and meet people you may be able to work with in the future.

We encourage applicants to ask for joint funding from another source (e.g. your university, a division/section of the BPS or an employer). This is because we want our budget to support as many events as possible.

**If interested, or would like more information,
please contact the Vice Chair at vicechair@psypag.co.uk**

**Guidance notes and application forms are downloadable at:
www.psypag.co.uk/workshops**

**Deadline for applications is 5.00pm, 30 June 2019
Workshops should be run after 1 October 2019**

Postgraduate Bursaries

Need help with the cost of attending a conference, workshop or other event related to your research? PsyPAG might be able to help.

All psychology postgraduates registered at a UK institution are eligible to apply for our bursary funds. We have three rounds of bursaries each year. The deadlines for each round are 10 February, 10 June and 10 October.

We offer the following:

- International Conference Bursaries* up to £300
- Domestic Conference Bursaries up to £100
- Study Visit Bursaries* up to £200
- Workshop/Training Bursaries up to £100
- Research Grant Bursaries* up to £300
- Travel Bursaries up to £50

* Successful applicants are required to write an article for the *PsyPAG Quarterly*.

To apply and for further information, please visit www.psyag.co.uk or contact the Information Officer at info@psyag.co.uk



@PsyPAG



Facebook.com/PsyPAG

PSYPAG

About PsyPAG

PsyPAG is a national organisation for all psychology postgraduates based at UK institutions. Funded by the Research Board of the British Psychological Society, PsyPAG is run on a voluntary basis by postgraduates for postgraduates.

PsyPAG's aims are to provide support for postgraduate students in the UK, to act as a vehicle for communication between postgraduates, and represent postgraduates within the British Psychological Society. It also fulfills the vital role of bringing together postgraduates from around the country.

- PsyPAG has no official membership scheme; anyone involved in postgraduate study in psychology at a UK institution is automatically a member.
- PsyPAG runs an annual workshop and conference and also produces a quarterly publication, which is delivered free of charge to all postgraduate psychology departments in the UK.
- PsyPAG is run by an elected committee, which any postgraduate student can be voted on to. Elections are held at the PsyPAG Annual Conference each year.
- The committee includes representatives for each Division within the British Psychological Society, with their role being to represent postgraduate interests and problems within that Division or the British Psychological Society generally.
We also liaise with the Student Group of the British Psychological Society to raise awareness of postgraduate issues in the undergraduate community.
- Committee members also include Practitioners-in-Training who are represented by PsyPAG.

Mailing list

PsyPAG maintains a JISCmail list open to *all* psychology postgraduate students.

To join, visit www.psypag.co.uk and scroll down on the main page to find the link, or go to tinyurl.com/PsyPAGjiscmail.

This list is a fantastic resource for support and advice regarding your research, statistical advice or postgraduate issues.

Social networking

You can also follow PsyPAG on Twitter (twitter.com/PsyPAG) and add us on Facebook (tinyurl.com/PsyPAGfacebook).

This information is also provided at www.psypag.co.uk.

Contents

Editorial	
<i>Alex Lloyd</i>	1
Chair's Column	
<i>Holly Walton</i>	3
Meet the Readers	4
Guest Authors:	
Conducting research in a secure mental health setting	
<i>Ella Hancock-Johnson & Vienna Rose</i>	7
Research in Brief:	
The intensity of childhood trauma has no impact on the cognitive development of decision-making style to be exhibited in adulthood	
<i>Gemini Katwa & Stacey A. Bedwell</i>	11
Discussion Papers:	
The power of our names, faces, and the self-reference effect: Is there more than meets the eye?	
<i>Clea Desebrock</i>	17
Cognition and religiosity: Who is most likely to believe?	
<i>Leor Zmigrod</i>	22
Is there a synaesthetic personality profile?	
Characterising synaesthetes' singularity	
<i>Anna Mas-Casadesús</i>	25
The importance of assessing alexithymia in psychological research	
<i>Lydia Hickman</i>	29
Discussion Papers (continued):	
What can psychology tell us about the impact of the use of technology and social media on our mental health?	
<i>Rebecca Dyas</i>	33
To vaccinate or not to vaccinate: Child influenza vaccination in England	
<i>Louise E. Smith</i>	36
Review Articles:	
COST Action: The Comparative Analysis of Conspiracy Theories Canterbury Training School Review	
<i>Darel Cookson</i>	41
Improve your statistical inferences with this one neat trick: A brief review of the Improving Your Statistical Inferences MOOC	
<i>Oliver Clark</i>	44
Conference Review:	
PsyPAG Annual Conference 2018	
<i>Angela Medvedeva</i>	47
Dates for your Diary	50
PsyPAG Committee 2018/2019	51



The British Psychological Society
Promoting excellence in psychology

St Andrews House, 48 Princess Road East, Leicester LE1 7DR, UK
t: 0116 254 9568 f: 0116 227 1314 e: mail@bps.org.uk w: www.bps.org.uk
© The British Psychological Society 2019
Incorporated by Royal Charter Registered Charity No 229642