Personality and Individual Differences 90 (2016) 174–176

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Perceived childhood inequality predicts schizotypy in adulthood

Minna Lyons *, Yasmin Edwards

University of Liverpool, United Kingdom

ARTICLE INFO

Article history:
Received 17 July 2015
Received in revised form 3 November 2015
Accepted 4 November 2015
Available online xxxx

Keywords:
Schizotypy
Objective social status
Subjective social status
Social rank theory

ABSTRACT

There has been much recent interest in inequality as a causal predictor of mental distress (Pickett & Wilkinson, 2015). However, research has not yet investigated the relationship between objective and subjective social rank and schizotypy, a personality trait that is associated with vulnerability to mental distress. In the present study, we looked at the relative contribution of childhood objective and subjective social rank in relation to schizotypy in adulthood. In an on-line sample of 365 volunteers based in the United Kingdom, we used post-code information in reconstructing an index of socio-economic status in childhood, as well as asking the participants subjective recollections of their childhood status in relation to others. We found that the subjective, rather than the objective measure of status was a significant predictor of all the dimensions of schizotypy. Individuals who had high objective, and low subjective status had higher scores in Cognitive Disorganisation. Our results highlight the importance of psycho-social route in the development of vulnerability to mental distress, and can be interpreted in light of the social rank theory.

1. Introduction

According to Pickett and Wilkinson (2015), poverty can exert negative influence on an individual's mental health either through material deprivation, or through a psychosocial route, the manner in how a person interprets their social position. There is evidence to suggest that mental distress is not necessarily induced by absolute deprivation, but by how wealthy an individual feels relative to others (Cené et al., 2015; McLaughlin, Costello, Leblanc, Sampson, & Kessler, 2012; Scott et al., 2014). Interestingly, research has found that relative deprivation especially in childhood is connected to negative mental health outcomes in adulthood (Das-Munshi et al., 2013; Wickham, Shryane, Lyons, Dickins, & Bentall, 2014). There currently is lack of research investigating the contribution of perceived childhood inequality (i.e., subjective feelings of deprivation), and actual socio-economic deprivation (i.e., objective measures of social status) in relation to individual differences in schizotypy, a personality trait that is relevant to mental health outcomes.

Schizotypy is a personality trait that is associated with proneness to psychosis and schizophrenia (Barrantes-Vidal, Grant, & Kwapil, 2015; Debbané et al., 2015). Schizotypy can be divided into several subcomponents, consisting of Unusual Experiences (perceptual aberrations and magical thinking), Introvertive Anhedonia (lack of enjoyment in social activities), Cognitive Disorganisation (difficulties in concentration and social anxiety), and Impulsive Nonconformity (violent, reckless, self-abusing tendencies; Mason, Claridge, & Jackson, 1995). Although there is some indication that low socio-economic status has a link to schizophrenia diagnosis (Harrison, Gunnell, Glazebrook, Page, & Kwiecinski, 2001; Werner, Malaspina, & Rabinowitz, 2007), the relationship is not consistent (Kwok, 2014). There are relatively few studies looking at the role of social class and/or perceived inequality in the development of schizotypal traits in non-clinical populations. In a longitudinal study, Cohen et al. (2008) found that low socio-economic status had a significant influence on schizotypal personality, and in a cross-sectional study, Wickham et al. (2014) found that perceived inequality in childhood predicted psychotic-like symptoms in adulthood. In the present study, we aim to add to the existing literature by investigating the relative contribution of low childhood social class and subjectively perceived inequality as contributing factors to different components of schizotypy in adulthood.

Theoretically, the effects of relative poverty can be understood through the evolutionary social rank theory. According to this theory, position in a social hierarchy is crucial for accessing resources, and as a result, individuals have evolved sensitivity to their status within the social group (Gilbert, 2000). In both human and non-human animal research, low rank is associated with indicators of low mood and increased anxiety (Markham et al., 2014; Michopoulos, Higgins, Toufexis, & Wilson, 2012; Wood, Boyce, Moore, & Brown, 2012). It has been suggested that low rank and distress are connected by hard-wired evolutionary mechanisms (Wood et al., 2012), and that mental distress (for example, symptoms of anxiety and depression) may be an adaptive response to low social rank (Sloman, Gilbert, & Hasey, 2003). Schizotypy is linked to depression and anxiety, (Lewandowski et al., 2006), both of which are affected more by low rank rather than

* Corresponding author at: School of Psychology, University of Liverpool, Bedford Street South, Liverpool L69 7ZA, United Kingdom.
E-mail address: m.lyons@liv.ac.uk (M. Lyons).

http://dx.doi.org/10.1016/j.paid.2015.11.005
0191-8869/

absolute poverty (Wood et al., 2012). Thus, we expect that in a similar way to depression and anxiety, schizotypy is also associated with low social rank. Further, it may be that individual's subjective perceptions of rank play a large role in behaviour and affect (Gilbert & Miles, 2000), and that subjective measures of social rank have a larger effect than objective measures.

In summary, we are interested in investigating the social rank theory in terms of individual differences in schizotypy. The present study examines the relative contribution of objective childhood social class, and subjective feelings of childhood inequality to schizotypy in adulthood. We expect that although objective measure of social class contributes to schizotypy, the subjective measure plays a more crucial role.

2. Method

2.1. Participants

Participants were recruited for an on-line study via social networking sites, online participation websites, and through advertising to university students who could participate in exchange of course credits. A total of 365 volunteers (59 males and 306 females) aged between 18 and 70 years old ($M = 29.01$, $SD = 11.29$) completed the survey.

2.2. Materials

Schizotypy was assessed using The Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE; Mason et al., 1995). It consists of 43 items with a dichotomous 'Yes' or 'No' response format measuring four subscales: The 12-item Unusual Experiences scale (e.g. "Are your thoughts sometimes so strong that you can almost hear them?"), the 11-item Cognitive Disorganisation scale (e.g. "Are you easily distracted when you read or talk to someone?"), the 10-item Introvertive Anhedonia (e.g. "Are you much too independent to get involved with other people?"), and the 10-item Impulsive Nonconformity scale (e.g. "Do you often feel like doing the opposite of what other people suggest even though you know they are right?"). Items for each subscale were summed. All the subscales had acceptable internal reliability (Cronbach's αs .67–.88).

Perceived inequality in childhood was measured using the Perceived Inequality in Childhood Scale (PICS; Wickham, Shevlin, & Bentall, 2013), a retrospective measure of relative deprivation during childhood (under 16 years old). The PICS contains 16 items, 10 that ask participants to compare themselves to the peers on indices such as wealth, quality of homes, stability of home, time spent with parents and hobby opportunities presented by parents. 6 items that related to material inequalities were then repeated, this time with reference to the wider society, for example, "in relation to other families in the country how would you rate your …." Participants were asked to respond using a 5-point Likert scale (1 = very poor, 5 = the best), with a lower score indicating greater feelings of deprivation compared to others, and a higher score indicates those that feel better off compared to others. Participants' responses were summed to give a total overall score of perceived inequality in childhood (Cronbach's $\alpha = .91$).

Social class in childhood was measured using the England Indices of Deprivation 2010 (Department of Communities and Local Government, 2011), a relative measure of multiple deprivation in small area levels across England. Areas are ranked on their level of deprivation based on seven objective domains: income; employment; health and disability; education, skills and training; barriers to housing and services; living environment; and crime, which are combined to produce an overall Index of Multiple Deprivation (IMD). Participants' were asked to provide the postcode of their childhood address (the last address where they lived at the age of 16), which was entered into a deprivation mapper (http://opendatacommunities.org/showcase/deprivation). In the present study, the 32,482 Lower Super Output Areas are divided into equal deciles, where 1 = most deprived, and 10 = least deprived in the UK.

3. Results

In Table 1, we present the descriptive statistics and cross-correlations for the variables. The IMD decile had a significant, positive correlation with PICS, indicating that those who had a high objective rank in the childhood also perceived themselves to be wealthy in relation to others. The IMD decile was negatively correlated with Introvertive Anhedonia, suggesting that low childhood social rank is associated with higher scores in Introvertive Anhedonia. PICS had significant negative correlations with all of the schizotypy subscales, indicating that subjective perceptions of low rank in relation to others associates with higher scores on a broad spectrum of schizotypy indicators.

In order to tease out the relative contribution of objective and subjective measures of social rank, we conducted four linear regressions separately for each schizotypy subscale (see Table 2). For each of the regressions, the IMD was entered as the first predictor, followed by both IMD and PICS. For Introvertive Anhedonia, the relationship between IMD became non-significant ($\beta = -.05$, $p = .36$) when it was simultaneously entered with PICS, which in turn was a significant negative predictor ($\beta = -.26$, $p = .001$). This indicates that rather than objective social status, the perceptions of inequality in childhood affect Introvertive Anhedonia in adulthood. For Cognitive Disorganisation, interestingly, the IMD decile had a significant positive correlation ($\beta = .12$, $p = .04$), while the PICS had a significantly negative ($\beta = -.25$, $p = .001$) association. This could indicate a trend for individuals from higher social class to have higher Cognitive Disorganisation when they have higher perceptions of childhood inequality. For Impulsive Nonconformity, PICS was a significantly negative predictor ($\beta = -.17$, $p = .04$), whereas IMD decile had no relationship ($\beta = .04$, $p = .47$). Finally, PICS was a significant negative predictor ($\beta = -.12$, $p = .03$), while IMD had no association ($\beta = -.06$, $p = .27$) with Unusual Experiences.

4. Discussion

To our knowledge, this study was the first one to test the contribution of objective and subjective childhood inequality to individual differences in schizotypy in adulthood in a non-clinical sample. As expected, we found that subjective perceptions of childhood inequality were associated with all aspects of schizotypy; Introvertive Anhedonia, Impulsive Nonconformity, Cognitive Disorganisation, and Unusual Experiences. Our results speak strongly for the importance of psychosocial factors in the development of schizotypy, and highlight the role of inequality in the causal chain leading to mental distress (Pickett & Wilkinson, 2015). Our study suggests that especially perceived childhood social rank (as opposed to the objective social rank) is a crucial determinant of individual vulnerability to mental distress. Studies that investigate the social rank theory should include measures of the psychological meaning of the status, as this seems to be a stronger predictor than objective measures of status (see also Gilbert & Miles, 2000).

Table 1
Descriptive statistics and correlations for the variables.

	Mean	SD	1.	2.	3.	4.	5.
1. IMD decile	5.76	3.13					
2. PICS	47.78	10.42	.31**				
3. Introvertive Anhedonia	3.22	2.55	−.13*	−.27**			
4. Impulsive Nonconformity	3.88	2.35	.01	−.10*	.21**		
5. Unusual Experiences	4.00	2.77	−.10	−.14**	.16**	.54**	
6. Cognitive Disorganisation	5.98	3.24	.07	−.11*	.31**	.57**	.48**

* $p < .05$.
** $p < .01$.

Table 2
Regression models for schizotypy subscales.

Regression models	Predictor	b	se
Introvertive Anhedonia			
Model 1	IMD	−.14*	.001
Model 2	IMD	−.05	.001
	PICS	−.25**	.01
Impulsive Nonconformity			
Model 1	IMD	−.01	.001
Model 2	IMD	.04	.001
	PICS	−.17*	.01
Unusual Experiences			
Model 1	IMD	−.11*	.001
Model 2	IMD	−.07	.001
	PICS	−.12*	.02
Cognitive Disorganisation			
Model 1	IMD	.06	.001
Model 2	IMD	.11*	.001
	PICS	−.15**	.02

* $p < .05$.
** $p < .01$.

Interestingly, higher scores on Cognitive Disorganisation were related to a higher social rank as well as higher perceived childhood inequality. Why individuals from better childhood backgrounds with perceptions of being poorer have higher Cognitive Disorganisation is not clear. Cognitive Disorganisation in schizophrenia may be associated with deficits in integrating contextual information (Hardy-Baylé, Sarfati, & Passerieux, 2003), and disorganised aspects of schizotypy may also contribute to impaired conscious memory (Stefaniak, Giot, Terrien, & Besche-Richard, 2015). These findings, together, suggest that Cognitive Disorganisation may affect the manner in which people recall their childhood experiences. However, the present design makes it difficult to infer any causal relationships.

This brings us to a number of limitations to this study that needs to be considered. Firstly, this study is cross-sectional and correlational. Although it attempted to identify some degree of the direction of causality by assessing social and economic deprivation in childhood and psychotic-like experiences in later life, it relied on retrospective measures of childhood disadvantage, which may be unreliable. Future research could aim to employ a longitudinal design to help clarify the direction of causality. Secondly, this study had a highly imbalanced sex ratio, with significantly more women than men, which prevented us from investigating any potentially important sex differences in these findings (Mason et al., 1995). Finally, the use of internet samples has been criticised for not reaching individuals from the lowest socioeconomic backgrounds (Van Dijk & Hacker, 2003). However, later research has confirmed that the internet is a reliable tool for reaching people from all backgrounds (see Gosling & Mason, 2015), and the benefits of internet research vastly outweigh any concerns relating to the potential quality of the data.

In summary, we have provided evidence for the relationship between subjective perceptions of social rank in childhood, and multidimensional aspects of schizotypy in adulthood. Our results support the idea that the psychosocial route is a crucial determinant of vulnerability to mental distress (Pickett & Wilkinson, 2015). The way that we subjectively perceive our position in the social hierarchy may exert a powerful influence on the development of personality traits that may predispose us to mental distress.

References

Barrantes-Vidal, N., Grant, P., & Kwapil, T. R. (2015). The role of schizotypy in the study of the etiology of schizophrenia spectrum disorders. *Schizophrenia Bulletin*, *41*(Suppl. 2), S408–S416.

Cené, C. W., Halladay, J. R., Gizlice, Z., Roedersheimer, K., Hinderliter, A., Cummings, D. M., ... DeWalt, D. A. (2015). Associations between subjective social status and physical and mental health functioning among patients with hypertension. *Journal of Health Psychology*, 1359105315581514.

Cohen, P., Chen, H., Gordon, K., Johnson, J., Brook, J., & Kasen, S. (2008). Socioeconomic background and the developmental course of schizotypal and borderline personality disorder symptoms. *Development and Psychopathology*, *20*, 633–650.

Das-Munshi, J., Clark, C., Dewey, M. E., Leavey, G., Stansfeld, S. A., & Prince, M. J. (2013). Does childhood adversity account for poorer mental and physical health in second-generation Irish people living in Britain? Birth cohort study from Britain (NCDS). *BMJ Open*, *3*(3), e001335.

Debbané, M., Eliez, S., Badoud, D., Conus, P., Flückiger, R., & Schultze-Lutter, F. (2015). Developing psychosis and its risk states through the lens of schizotypy. *Schizophrenia Bulletin*, *41*(Suppl. 2), S396–S407.

Department of Communities and Local Government (2011). The English indices of deprivation 2010. Retrieved from: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2010

Gilbert, P. (2000). The relationship of shame, social anxiety and depression: The role of the evaluation of social rank. *Clinical Psychology & Psychotherapy*, *7*, 174–189.

Gilbert, P., & Miles, J. N. (2000). Sensitivity to social put-down: it's relationship to perceptions of social rank, shame, social anxiety, depression, anger and self-other blame. *Personality and Individual Differences*, *29*, 757–774.

Gosling, S. D., & Mason, W. (2015). Internet research in psychology. *Annual Review of Psychology*, *66*, 877–902.

Hardy-Baylé, M. C., Sarfati, Y., & Passerieux, C. (2003). The cognitive basis of disorganization symptomatology in schizophrenia and its clinical correlates: Toward a pathogenetic approach to disorganization. *Schizophrenia Bulletin*, *29*, 459–471.

Harrison, G., Gunnell, D., Glazebrook, C., Page, K., & Kwiecinski, R. (2001). Association between schizophrenia and social inequality at birth: Case–control study. *The British Journal of Psychiatry*, *179*, 346–350.

Kwok, W. (2014). Is there evidence that social class at birth increases risk of psychosis? A systematic review. *International Journal of Social Psychiatry*, *60*, 801–808.

Lewandowski, K. E., Barrantes-Vidal, N., Nelson-Gray, R. O., Clancy, C., Kepley, H. O., & Kwapil, T. R. (2006). Anxiety and depression symptoms in psychometrically identified schizotypy. *Schizophrenia Research*, *83*, 225–235.

Markham, A. C., Santymire, R. M., Lonsdorf, E. V., Heintz, M. R., Lipende, I., & Murray, C. M. (2014). Rank effects on social stress in lactating chimpanzees. *Animal Behaviour*, *87*, 195–202.

Mason, O., Claridge, G., & Jackson, M. (1995). New scales for the assessment of schizotypy. *Personality and Individual Differences*, *18*, 7–13.

McLaughlin, K. A., Costello, E. J., Leblanc, W., Sampson, N. A., & Kessler, R. C. (2012). Socioeconomic status and adolescent mental disorders. *American Journal of Public Health*, *102*, 1742–1750.

Michopoulos, V., Higgins, M., Toufexis, D., & Wilson, M. E. (2012). Social subordination produces distinct stress-related phenotypes in female rhesus monkeys. *Psychoneuroendocrinology*, *37*, 1071–1085.

Pickett, K. E., & Wilkinson, R. G. (2015). Income inequality and health: A causal review. *Social Science & Medicine*, *128*, 316–326.

Scott, K. M., Al-Hamzawi, A. O., Andrade, L. H., Borges, G., Caldas-de-Almeida, J. M., Fiestas, F., ... Kessler, R. C. (2014). Associations between subjective social status and DSM-IV mental disorders: Results from the World Mental Health Surveys. *JAMA Psychiatry*, *71*, 1400–1408.

Sloman, L., Gilbert, P., & Hasey, G. (2003). Evolved mechanisms in depression: the role and interaction of attachment and social rank in depression. *Journal of Affective Disorders*, *74*, 107–121.

Stefaniak, N., Giot, C., Terrien, S., & Besche-Richard, C. (2015). Impaired conscious memory in non-clinical schizotypy. *Cognitive Neuropsychiatry*, *20*, 243–253.

Van Dijk, J., & Hacker, K. (2003). The digital divide as a complex and dynamic phenomenon. *The Information Society*, *19*, 315–326.

Werner, S., Malaspina, D., & Rabinowitz, J. (2007). Socioeconomic status at birth is associated with risk of schizophrenia: Population-based multilevel study. *Schizophrenia Bulletin*, *33*, 1373–1378.

Wickham, S., Shevlin, M., & Bentall, R. P. (2013). Development and validation of a measure of perceived relative deprivation in childhood. *Personality and Individual Differences*, *55*, 399–405.

Wickham, S., Shryane, N., Lyons, M., Dickins, T., & Bentall, R. (2014). Why does relative deprivation affect mental health? The role of justice, trust and social rank in psychological wellbeing and paranoid ideation. *Journal of Public Mental Health*, *13*, 114–126.

Wood, A. M., Boyce, C. J., Moore, S. C., & Brown, G. D. (2012). An evolutionary based social rank explanation of why low income predicts mental distress: A 17 year cohort study of 30,000 people. *Journal of Affective Disorders*, *136*, 882–888.