

## An exploration of young people's narratives of hope following experience of psychosis

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**Title: Beliefs in Social Inclusion: Invariance in associations between hope, dysfunctional attitudes and social inclusion across adolescence and young adulthood**

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**Abstract**

Social disability in youth is an important precursor of long-term social and mental health problems. Social inclusion is a key policy driver and fits well within a new paradigm of health and wellbeing rather than illness-oriented services; yet little is known about social inclusion and its facilitators for 'healthy' young people. We present a novel exploratory structural analysis of social inclusion using measures from 387 14 to 36 year olds. Our model represents social inclusion as comprising social activity and community belonging; with both domains predicted by hopeful and dysfunctional self-beliefs, but hopefulness more uniquely predicting social inclusion in adolescence. We conclude that social inclusion can be modelled for meaningful comparison across spectra of development, mental health and functioning.

Youth is a time for forging a social identity as well as a particular period of vulnerability for the development of mental health problems (Cobigo et al. 2012; Fowler et al. 2010; Kessler et al. 2007). Social inclusion is a key goal in mental health treatment; for social exclusion is associated with the persistence and exacerbation of the mental health problems (Department of Health 2011). However, social disability is observable before the onset of complex mental health problems (Fowler et al. 2010), constituting a clear risk factor for development of such problems (Valmaggia et al. 2013). In the general population, social inclusion is associated with greater psychological and physiological health and wellbeing, yet research has tended to focus on social exclusion within vulnerable groups (Begen & Turner-Cobb 2014; Spandler 2007). Thus little is known about 'what' or 'how much' social inclusion might be considered normative, despite its positioning as an important and supposedly achievable goal in mental health interventions (Spandler 2007). Empirical study of model of social inclusion applicable to both clinical and non-clinical populations of young people is needed. This is in keeping with the recent paradigm shift in mental health services to focus on health and wellbeing as meaningful to all people, rather than studying 'illness' and disability within select groups (Slade 2010; Wood & Tarrier 2010).

### ***The structure of social inclusion***

Measurement of social inclusion is hampered by multiple definitions and a lack of empirical investigation (Cobigo et al. 2012; Hall 2009; Lloyd, Tse, and Deane 2006; Morgan et al. 2007). The concept overlaps with constructs such as community integration and social functioning (Priebe 2007; Wellman & Berkowitz 1988; Wong and Solomon 2002), but extends them; encapsulating objective and subjective indices across social, vocational and occupational domains (Hall 2009; Parr et al. 2004; Sayce 2001). Reliance on both objective and subjective indices is the key strength of social inclusion; the former easier to interpret and persuade policymakers, the latter potentially more changeable, less value-laden, more sensitive to individual experiences and aspirations (Corrigan & Buican 1995; Priebe 2007; Spandler 2007). Furthermore, increased objective activity without associated positive subjective experience may actually decrease wellbeing (Corrigan & Buican 1995; Hall 2010).

Suggested candidate objective indicators reflect the presence or absence of social networks and social, cultural and leisure activities (Cobigo et al. 2012; Hall 2009; Martin & Cobigo 2011; Morgan et al. 2007). Suggested subjective indicators focus on a sense of belonging; perceiving that one fits in with and is valued by others, and that relationships are mutual and reciprocal (Hagerty et al. 1996; Mahar et al. 2013; Norman et al. 2012). Active objective political participation is not necessarily a normative youth activity per se (Harris 2010; Tonge, Mycock & Jeffrey, 2012), but feeling one's political beliefs are listened to promotes subjective belonging (Harris 2010).

Paid employment, often cited as the key indicator of social inclusion, inadequately reflects the contributions of young people to society within current high youth unemployment and complex transitions post-age 16 (Bynner 2005; Harris et al. 2008; Smith et al. 2005) - and especially so for vulnerable people who may not all be able or desire to engage in paid work (Priebe 2007). A broader conceptualisation of occupation including education, leisure and cultural activities may better capture

the occupational domain of young people's social inclusion (Harris et al. 2008). The current study is the first known exploration of how such indicators of social inclusion cluster together.

### *Predictors of social inclusion*

Whilst we acknowledge structural impediments to social inclusion such as economic instability (Sayce, 2001), locating social inclusion fully within a 'barriers' approach may perpetuate exclusion by locating causes within unchangeable systems (Levitas 1998). An individual capacities approach can help to identify potential targets on which to focus interventions. Our approach follows the premise that beliefs about oneself influence activities, behaviours and relationships (Safran & Segal 1996; Saltzberg & Dattilio 1996), and focuses especially on hope theory (Snyder 2002) and cognitive theory (Beck et al. 2009) in keeping with an equal weighting to both 'positive' and 'negative' characteristics in functioning (Wood & Tarrier 2010).

### *Hopefulness*

Hope theory (Snyder 2002) suggests that what people hope and expect to come influences their behaviour. Hope is "a cognitive set that is based on a reciprocally-derived sense of successful agency (goal-directed determination) and pathways (planning to meet goals)" (Snyder et al. 1991, p. 571). Agency, the motivation and belief in one's ability to attain goals, sparks the identification of pathways; with both components mutually reinforcing during on-going goal pursuit (Snyder 2002). Goals are essential to hope and must be sufficiently valuable to occupy an individual's thoughts without being unquestionably obtainable (Snyder 2002).

Global trait hope predicts outcomes for young people including academic and athletic attainment (Marques et al. 2015). However, the more concrete domain-specific hope should greater predict activity and experience in associated life domains and may be particularly amenable to intervention (Snyder 2002). Domain-specific hope correlates with academic, athletic, social, leisure, and family life attainment and satisfaction in healthy young people (Kwon 2002; Robinson & Schumacker 2009; Snyder 2002). However, previous studies have prioritised non-social and objective outcomes (Gilman et al. 2006) and no known studies have focused on social inclusion.

### *Dysfunctional attitudes*

Two types of dysfunctional attitudes were first identified in Beck and colleagues' (1983) account of cognitive vulnerabilities to depression; 'defeatist performance' beliefs reflecting exaggerated concern with performance and 'need for approval' beliefs reflecting exaggerated concern with others' approval. Reportedly dysfunctional undermine self-worth and increase sensitivity to adverse life events, leading to withdrawal from tasks and effortful activities for protection against anticipated failure and criticism (Beck et al. 1983; Beck et al. 2009). Dysfunctional attitudes are fairly stable (Vázquez & Ring 1993) but can change during psychological intervention (Rector 2013).

Dysfunctional attitudes predict social and occupational functioning in psychosis and are thought to mediate the impact of negative symptoms in long-term, short-term, and at risk for psychosis populations (Beck et al. 2009; Beck & Rector 2005; Morrison et al. 2006). For adolescents and young

adults without mental health problems, dysfunctional attitudes are cross-sectionally associated with lower perceived social support, greater loneliness (Halamandaris & Power 1997; Wilbert & Rupert 1986), increased likelihood of interpersonal problems (Whisman & Friedman 1998), reduced quality of life (Long & Hayes 2013), university adjustment and well-being (Halamandaries & Power 1997). However, analyses have not tended to control for mood, despite dysfunctional attitudes representing vulnerability to low mood and depression (Beck et al. 1983). Furthermore, no known exploration of associations with social inclusion exists. The ‘broaden and build’ model suggests that whilst negative thoughts and emotions encourage narrowly-focused ‘survival’ behaviours, such as withdrawal in the context of dysfunctional attitudes, strengths such as hope promote novel positive behavioural strategies and distract individual from these negative thoughts (Compton 2005; Fredrickson 1998; Renner et al. 2013).

#### *A developmental lens*

Developing a social identity and negotiating new activities in the social world are key developmental tasks and aging provides different opportunities for interactions and activities (Cobigo et al. 2012). There is little agreement regarding what ‘developmentally appropriate’ health and social care looks like and how it should be operationalised (Farre et al. 2015), yet in youth, vulnerability to social exclusion and mental health problems is high and interventions conducted sensitively at relevant turning points can have a particularly effective and long-lasting impact (Cohen Kadosh et al. 2013; Fowler et al, 2009; Mahar, Cobigo, & Stuart 2013). Thus there is a clear need to consider social inclusion within a developmental context (Cobigo et al. 2012; Martin & Cobigo 2011; Priebe 2007).

Processes of identity forming and understanding the self in relation to friends, family and romantic partners are key developmental trajectories in adolescence (Hill et al. 2013). Socialising and friendships represent particularly important goals for adolescents, with occupation and community involvement more paramount for young adults (Hartup & Stevens 1997; Iarocci et al. 2008; Steinberg & Morris 2001). Objective social activities and network sizes increase through adolescence then decline in young adulthood; perhaps as people learn to derive equal subjective benefit from fewer interactions (Carstensen 1991; Wrzus et al. 2013).

Dysfunctional attitudes are thought to influence behaviours more when people reach cognitive maturity (i.e. early adulthood; D’Alessandro & Burton 2006), suggesting that a stronger association with social inclusion would be present in young adulthood compared to adolescence. It has been suggested that high hope arises in secure childhood attachments to caregivers (Snyder 2002), yet developmental changes in the course and impact of hope is unclear (Esteves et al. 2013). Younger people may be more confident in their abilities (Schunk & Meece 2006) and thus have increased agency; yet adults arguably benefit from more experience in goal pursuit (Freund, Hennecke & Riediger, 2010). Thus, we made no a priori prediction regarding the nature of age differences in associations between hopefulness and social inclusion.

Gender and ethnicity are also potentially important covariates, although again no a priori hypotheses were made. Females report closer relationships, provision of more social support (Belle 1987), and greater community participation (Bruegel 2005; Lowndes 2000). People identifying with a

minority ethnic group may have reduced objective indices of inclusion (Campbell & McLean 2003; McPherson 1999), but experience increased subjective social inclusion within distinct ethnic communities (Campbell & McLean 2003).

## **Hypotheses**

We hypothesised that social inclusion would be denoted by (i) objective participation in social networks and activities, (ii) subjective experience of social acceptance and relationship reciprocity, (iii) objective participation in occupational (cultural and leisure) activities, and (iv) subjective sense of belonging, including valued occupation and political inclusion. We hypothesised that domain-specific hopefulness (social, romantic, leisure, work, academic, family) and dysfunctional attitudes would predict social inclusion in related domains, and that greater domain-specific hopefulness would protect against negative associations between dysfunctional attitudes and social inclusion. We also hypothesised that social and objective domains of inclusion would be more pronounced in adolescence and occupational and subjective social inclusion domains more pronounced in young adulthood, and dysfunctional attitudes would be more strongly associated with social inclusion in young adulthood compared to adolescence.

## **Methods**

### ***Procedure***

Measures were administered via an anonymous cross-sectional online questionnaire using Bristol Online Survey software (<http://www.survey.bris.ac.uk>). A convenience sample of young people was recruited from university and National Health Service staff and students in the South of England, social media including Facebook, Netlog, The Student Room, Jobseekers Advice Forum, Football.co.uk Forum, Teen Forum and Habbox, and survey websites including Psych Hanover Psychological Research on the Net, Online Psychology Research, and the Social Psychology Network. Ethical approval for the research was provided by the university Research Ethics Committee (reference: KGCB0511). Participants provided informed consent by responding affirmatively to a consent item and submitting the questionnaire. No personal data were requested or obtained as part of the questionnaire.

### ***Participants***

Participants were aged 14 to 36 years, with residence of the United Kingdom or Republic of Ireland, and no current mental health problems. A total of 619 people started the online questionnaire and the following exclusions made; 147 provided demographic information only, 9 did not meet inclusion criteria, 6 gave wholly invalid or incongruous responses, and 70 reported current mental health problems. The final sample ( $N = 387$ ; 238 females, 139 males, 6 non responses, and 4 trans or other gender) was aged from 14 to 36 years ( $M_{\text{age}} = 20.83$ ,  $SD = 4.49$ ) and described their ethnicity as follows; 298 White British, 25 White Other, 20 British Indian, Pakistani or Bangladeshi, 15 unknown, 14 Black British, 7 Mixed, 3 African, 3 Asian, and 2 Chinese, with 341 born in the UK, 44 not, and 2 unknown. Almost all participants (95.9%) were engaged in vocational activity; 33.33% ( $n=129$ ) were

in education only, 21.44% (n=83) were in paid employment only, and 41.10% (n=159) in a combination of employment and education.

## **Measures**

### ***Social inclusion***

#### *Objective social and occupational activity*

The Social Relationship Scale (SRS; McFarlane et al. 1981) was used to capture objective indicators of the size and reciprocity of individuals' social networks across both social (home and family, personal and social), occupational and other life areas (work, money and finances, issues relating to society, personal health). Participants listed people who they would discuss each life area with (size) and whether these people would also discuss this area with them (reciprocity).

As studies suggest healthy young people have social networks of at least 10-20 people (Macdonald 2000) but often mention the same person in multiple areas (McFarlane et al. 1981), the cap of number of people spoken to in each life area was raised to  $\leq 17$  from the original 6. Participants were also asked to report the proportion of reciprocal relationships; i.e. scoring "How many of these people would talk to you about the same life area?" from 1 (none of them) to 5 (all of them). Two variables were derived; a) the number of relationships and b) proportion of reciprocal relationships in each area, with higher scores reflecting greater social network size and reciprocity respectively.

#### *Subjective social and occupational experience.*

Indicators of social and cultural activity, valued occupation, political inclusion and social acceptance were captured using the Social Inclusion Measure (SIM; Secker et al. 2009). Items such as "I have felt accepted by my friends" are rated for the preceding month from 1 (not at all) to 4 (yes definitely). This 16-item measure was developed with people with serious mental health problems and amended to ensure equal applicability to the normative 'healthy' population. Three SIM items referring explicitly to mental health problems or services, for example "I have been involved in a group, club or organisation that is not just for people who use mental health services", were amended. Instead, participants responded in reference to the group they felt most strongly defines them (e.g. ethnicity, vocational status), thus assessing inclusion within other sub/cultures than that of their primary identification.



### ***Hopefulness***

Hope across life areas thought relevant to social inclusion (academic, work, social, family, romantic, and leisure) was captured using the Domain-Specific Hope Scale (DSHS; Sympson 2000). Participants respond to eight items in each of six life areas, for example, “I can always get a date if I set my mind to it” (romantic hope) from 1 (definitely false) to 8 (definitely true). The DSHS achieved excellent internal reliability for healthy young people; overall  $\alpha = .93$  and subscales ranging from .86 to .93 (Sympson, 1999). Higher scores reflect greater hopefulness.

An Exploratory Factor Analysis (EFA) using mean and variance adjusted Weighted Least Squares (WLSMV) estimation for categorical data confirmed the 48 items form 6 separate hope scales; academic, work, social, romantic, family and leisure hope, with acceptable model fit;  $\chi^2(855) = 1991.05, p < .001$ , Comparative Fit Index (CFI) = .96, Root Mean Square Error of Approximation (RMSEA) = .06, and Standardised Root Mean square Residual (SRMR) = .03. However, the scree plot indicated a break after two factors and a subsequent EFA (Maximum Likelihood Robust estimation) using the six subscale mean scores supported a two factor structure ( $\chi^2(8) = 15.78, p = .05$ ); comprising occupational hope (academic and work;) and social hope (social, romantic, leisure and family). Thus hopefulness was represented as two subscale scores; occupational hope (mean of 16 items;  $\alpha = .89$ ) and social hope (mean of 32 items;  $\alpha = .95$ ).

### ***Dysfunctional attitudes***

Negative self-beliefs were measured using the Dysfunctional Attitudes Scale (Weissman & Beck 1978). Dysfunctional attitudes, for example “If you cannot do something well, there is little point in doing it at all” scored from 1 (totally agree) to 7 (totally disagree). The defeatist performance beliefs (occupational) and need for approval (social) subscales have been found reliable with healthy young people (de Graaf, Roelofs, and Huibers 2009; Horan et al. 2010); although one study suggested some subscale overlap (Prenoveau et al. 2009). A Confirmatory Factor Analysis (CFA) with WLSMV estimation confirmed the fit of the two factor structure was subthreshold; chi-square goodness of fit test of  $\chi^2(274) = 1054.39, p < .001, CFI = .90, RMSEA = .09, SRMR = 1.50$ . However, the scree plot supported a two factor solution, further factors comprised only one or two theoretically incongruent cross-loading items and Cronbach’s alpha was high for the defeatist performance ( $\alpha = .92$ ) and need for approval ( $\alpha = .82$ ) subscales; thus the two subscales were retained.

### ***Mood***

Mood was measured using a global item (Abdel-Khalek 2006); “Do you feel happy in general?” scored from 0 (very unhappy) to 10 (very happy). This item has high test-retest reliability over one week with young people ( $r = .86$ ; Abdel-Khalek 2006) and has been used to capture mood in both healthy and clinical populations (Badcock, Paulik, & Maybery 2011; Brown et al., 2011). This item correlates strongly and positively with multiple item happiness measures and strongly and negatively with negative affect and anxiety (Abdel-Khalek 2006).

### ***Demographics***

Self-reported age, gender, ethnicity and place of birth were also recorded.

## **Analysis**

Data analysis was conducted in PASW (Version 20, IBM Corp., 2011) and Mplus (version 6.0; Muthén & Muthén 1998-2010). Factor analysis and structural equation modelling allow our hypotheses to be tested in a series of linked analyses. First, the multidimensional structure of social inclusion in a normative population, i.e. the extent to which designated indicators of social inclusion ‘hang together’ (Cronbach & Meehl 1955) was explored through factor analysis leading to a social inclusion measurement model. Using the factor model of social inclusion, covariates, predictors of social inclusion and invariance of associations across age groups were then tested using structural equation modelling (Gregorich 2006; Horn & McArdle 1992). Good model fit was indicated by non-significant chi-square statistic ( $\chi^2$ ) or  $\chi^2/\text{degrees of freedom}$  ratio of  $\leq 2:1$ ,  $RMSEA < .06$ ,  $SRMR < .05$ , and  $CFI > .95$ , and examining scree plots, inter-item correlations and Cronbach’s alpha (Hu & Bentler 1999; Schreiber et al. 2006; Tabachnick & Fidell 2007).

Although people self-reporting current mental health problems were excluded, 72 participants self-reported a previous mental health problem and 68 stated ‘not sure’. Post hoc invariance testing was performed to confirm that the inclusion of these participants was appropriate. It was found that the measurement model was equivalent and thus findings from the full sample of 387 participants are presented here. Self-reporting a previous or possible mental health problem is not equivalent to a clinical diagnosis and inclusion of people who have or do experience some form of may mental distress actually best represents the general population (Moffitt et al. 2010).

## **Results**

### ***Social inclusion measurement model development***

Missing values were observed for most variables and were considered missing at random. More missing values were observed for items appearing later in the online questionnaire, deemed due to fatigue, and for participants not born in the UK or Republic of Ireland, deemed due to incomprehension or early exit due to eligibility concerns. Within measures, case-by-case mean substitution was used with missing data of  $\leq 25\%$  to preserve present information (Little & Rubin 1987; Schafer & Graham 2002). Between variables, missing data was handled using Full Information Likelihood (FIML) estimation, which computes parameters using all present data and the implied missing data based on maximum likelihood (Johnson & Young 2011). The majority of the study variables were positively skewed and non-normal, requiring WLSMV estimation with categorical variables and MLR with continuous variables (Finney & DiStefano, 2006; Muthén & Muthén 1998-2010).

First, structures within each social inclusion measure were explored using individual EFAs. Using WLSMV estimation, EFA of the Social Relationship Scale (SRS; McFarlane et al. 1981; 12 items) resulted in a three factor solution according to the scree plot and model fit indices. The third factor comprised only lower magnitude cross-loading items, with the first two factors comprising all network size and reciprocity items respectively. Therefore, a two factor solution, although subthreshold in fit, ( $\chi^2(43) = 195.93$ ,  $p < .001$ ,  $CFI = .89$ ,  $RMSEA = .11$ ), was selected as preferable conceptually.

Cronbach's alpha for these two derived subscales was acceptable; social network size;  $\alpha = .73$  and social network reciprocity;  $\alpha = .71$  (with removal of money reciprocity).

An EFA of the Social Inclusion Measure (SIM; Secker et al., 2009; 16 items) using WLSMV estimation resulted in a four factor solution instead of the three conceptually-derived subscales proposed by the authors. Despite a significant chi-square goodness of fit test ( $\chi^2(62) = 124.06$ ,  $p < .001$ ), alternative model fit indices were excellent ( $\chi^2/df$  ratio = 2.00,  $CFI = .98$ ,  $RMSEA = .05$ ,  $SRMR = .04$ ) and the scree plot suggested four factors. The four factors were deemed to represent social contact, cultural inclusion, political inclusion and belonging and meaningful occupation (Table 1). Two items had cross-loadings greater than .3 ("I have been to new places" and "I have felt that I am playing a useful part in society"), but were restricted to the factor with the higher loading for greater parsimony. The item "I have been involved in a group, club or organisation that is not just for [members of my group]" did not load  $>.3$  on any factor and was excluded. Consideration of Cronbach's alpha led to the removal of four further items to improve the internal reliability (Table 1), resulting in final Cronbach's alpha of  $\alpha = .80$  for social contact,  $\alpha = .66$  for cultural inclusion,  $\alpha = .72$  for political inclusion, and  $\alpha = .75$  for belonging and meaningful occupation. INSERT TABLE ONE HERE. INSERT FIGURE ONE HERE.

An EFA of the six social inclusion indicators (social network size and reciprocity, social contact, cultural inclusion, political inclusion, and belonging and meaningful occupation) using MLR estimation suggested two factors, with a clear 'break' in the scree plot (Figure 1) and excellent fit indices;  $\chi^2(4) = 4.40$ ,  $p = .35$ ,  $CFI = 1.00$ ,  $RMSEA = .02$ ,  $SRMR = .02$ , with no cross-loadings  $>.3$ . The two factor structure (Table 2) represents social inclusion as comprising one more objective, socially focused factor ('social activity') and one more subjective, occupational and community focused factor ('community belonging'). INSERT TABLE TWO HERE.

The social inclusion measurement model was created by re-specifying the two factor model as a CFA using MLR estimation with cross-loading paths fixed to zero. Model fit was excellent:  $\chi^2(8) = 10.22$ ,  $p = .25$ ,  $CFI = .99$ ,  $RMSEA = .03$ ,  $SRMR = .03$ . This structure partially supported the hypothesis that objective and subjective and social and occupational indicators would form separate factors, as social activity is a socially focused factor (comprised of mainly objective items), and community belonging is mainly occupation or community focused (mixed objective and subjective items) as shown in Figure 2.

### ***The Beliefs in Social Inclusion Model (BSI)***

The BSI model was tested by regressing the two latent social inclusion variables onto hopefulness (social and occupational) and dysfunctional attitudes (need for acceptance and defeatist performance beliefs). Correlations between hopefulness and dysfunctional attitudes did not suggest significant multicollinearity (Field 2009; Table 3). INSERT TABLE THREE HERE.

This model (BSI.1) demonstrated good fit,  $\chi^2/df = 2.11$ ,  $CFI = .94$ ,  $RMSEA = .05$ ,  $SRMR = .04$ , albeit with a significant chi-square test ( $\chi^2(24) = 50.66$ ,  $p = .001$ ). Occupational hope did not significantly predict social activity ( $\beta = .00$ ,  $b = .00$ ,  $p = .95$ ) and fixing this path to zero did not significantly reduce model fit ( $\Delta\chi^2 = 0.03(1)$ ,  $p > .10$ ), thus it was removed. In the amended model

(BSI.2), the pathway from need for approval to community belonging was only just significant ( $\beta = .12$ ,  $b = .08$ ,  $p = .05$ ), but removing it significantly reduced model fit ( $\Delta\chi^2 = 4.18(1)$ ,  $p < .05$ ) thus it was retained. The fit of BSI.2 (depicted with standardised coefficients in Figure 2 and parameter estimates in Table 5) was good;  $\chi^2(25) = 50.65$ ,  $p = .001$ ,  $\chi^2/df = 2.03$ ,  $CFI = .95$ ,  $RMSEA = .05$ ,  $SRMR = .04$ . BSI.2 suggests greater social hope, lesser defeatist performance beliefs, and, unexpectedly, greater need for approval predict social activity and community belonging are predicted by, with greater occupational hope also predicting community belonging. Individual paths represent mainly moderate effect sizes and the model overall explained a large amount of variance in social activity ( $R^2 = 41.8\%$ ) and community belonging ( $R^2 = 53.7\%$ ; Cohen 1988; Cohen 1992). A specificity of association was found only for occupational hope and community belonging; all other self-beliefs in each domain (social and occupational) predicted both social inclusion domains. INSERT FIGURE TWO HERE. INSERT TABLE FOUR HERE.

A reverse model (BSI<sub>rev</sub>) was computed by regressing all four self-beliefs onto the two social inclusion factors to ascertain whether the data are also consistent with social inclusion predicting self-beliefs. BSI<sub>rev</sub> provided near equal fit to the original model ( $\chi^2(25) = 51.17$ ,  $p = .001$ ) but does not improve on explained variance in its dependent variables compared to BSI.2. In this model, community belonging ( $\beta = -.24$ ,  $b = -.38$ ,  $p = .04$ ), but not social activity ( $\beta = .14$ ,  $b = .26$ ,  $p = .27$ ), was associated with need for approval, which differs from BSI.2. It could be that need for approval drives people to seek greater social activity and community belonging (BSI.2), with greater community belonging also leading to remittance of need for approval (BSI<sub>rev</sub>); however, the lack of association between social activity and need for approval (BSI<sub>rev</sub>) is counter-intuitive. Although BSI<sub>rev</sub> cannot be fully discounted, BSI.2 has at least equivalent model properties and is theoretically superior due to the greater supposed degree of influence from beliefs to behaviours (Safran & Segal 1996).

BSI.2 was re-computed with mood as a covariate by regressing both social inclusion factors onto mood (BSI.3; see Table 5 for model key). Positive mood significantly predicted both social activity ( $\beta = .18$ ,  $b = .05$ ,  $p = .02$ ) and community belonging ( $\beta = .19$ ,  $b = .06$ ,  $p = .002$ ). Associations between dysfunctional attitudes, hope and social inclusion changed little compared to BSI.2 ( $< .1$  change in standardised coefficients) and mood explained little additional variance (1% social activity and 0.1% in community belonging); thus associations between self-beliefs and social inclusion are robust to the influence of mood.

Associations between gender and ethnicity and model variables were examined. When covarying gender, need for approval marginally rather than significantly predicted community belonging ( $\beta = .12$ ,  $b = .07$ ,  $p = .06$ ). All other parameters remained significant and changed little in magnitude ( $< .1$  change in standardised coefficients), thus gender has negligible impact. Ethnicity was not associated with social inclusion and was not analysed further. Due to greater missing data for people born outside the UK, birthplace (i.e. UK versus other) was covaried (BSI.5). Being born in the UK was associated with greater social activity ( $\beta = .15$ ,  $b = .25$ ,  $p = .03$ ), but there were no other changes to parameter estimates. INSERT TABLE FIVE HERE.

### **A protective effect of the hopeful self?**

In order to investigate whether hope protects against the association between dysfunctional attitudes and social inclusion, grand mean-centred product terms were created and introduced as predictors of social inclusion; defeatist performance beliefs x occupational hope, defeatist performance beliefs x social hope, need for approval x social hope, and need for approval x occupational hope. The fit of this model (BSI.6) was excellent:  $\chi^2(43) = 46.80, p = .32; CFI = .99, RMSEA = .02, SRMR = .03$ . No interaction effects were significant with respect to social activity, but significant small interactions were observed for defeatist performance beliefs x social hope ( $\beta = .23, b = .08, p = .02$ ), defeatist performance beliefs x occupational hope ( $\beta = -.20, b = -.08, p = .02$ ), and need for approval x occupational hope ( $\beta = .20, b = .09, p = .02$ ) with respect to community belonging. Interaction plots were created representing  $\pm 1$  SD for each self-belief. As a latent variable, community belonging has a mean and intercept of 0 and is represented on the y axis in SD units of its measurement model reference indicator (i.e. belonging and meaningful occupation,  $M = 2.98, SD = .72$ ). INSERT FIGURE THREE HERE.

To support the hypothesis that hope protects against the influence of negative self-beliefs, community belonging should be greater for high versus low hope when negative self-beliefs are high. As shown in Figure 3, high defeatist performance beliefs are associated with reduced community belonging only in the context of low social hope, suggesting high social hope is protective. Conversely (Figure 4), findings did not support high occupational hope protecting against high defeatist performance beliefs, as community belonging was not greater when both defeatist performance beliefs and occupational hope were high. INSERT FIGURE FOUR HERE.

Finally (Figure 5), despite the main positive association between need for approval and social inclusion overall, findings still support a buffering effect of hope here; when occupational hope is high, high need for approval is associated with greater community belonging versus reduced community belonging in the context of high need for approval and low occupational hope. INSERT FIGURE FIVE HERE.

### *Looking through the developmental lens*

The sample was split into adolescents (14 to 18 years;  $n = 152$ ) and young adults (19 to 36 years;  $n = 235$ ) using age as a proxy for development. Developmental differences were tested using multi-group invariance testing in a series of hierarchical stages. First, the invariance of the measurement model was tested (social inclusion measurement model), i.e. equivalence of model fit, factor loadings, intercepts and residuals. Secondly, the invariance of the structural model (BSI.2) was tested, i.e. equivalence of factor means, variances and covariances. As each additional element was constrained to equivalence and the new model compared to the previous step, a significant  $\Delta\chi^2$  difference test implied significant difference and thus variance between groups (Widaman & Reise, 1997). Partial variance was accepted in the measurement model, i.e. in which some model parameters (e.g. intercepts) can vary between groups, as long as at least one indicator per factor was invariant other than the reference indicator used to define the latent variable scale (Muthén & Christoffersson 1981; Steenkamp & Baumgartner 1998). INSERT TABLE SIX HERE.

Invariance testing (Table 6) confirmed that the two factor social inclusion structure fits well within (dimensional invariance) and equivalently across (configural invariance) adolescents and young adults, and factors have equivalent meanings (equivalent factor loadings; weak invariance). When testing equivalence in the meaning of scores (intercepts; strong invariance), the  $\chi^2$  difference test revealed a significant difference ( $\Delta\chi^2(4) = 12.38, p < .02$ ); the source being the intercept for the social network reciprocity ( $M_{adolescent} = 3.46, M_{adult} = 3.77$ ). Freeing this intercept resulted in a non-significant difference in comparison to the preceding model ( $\Delta\chi^2(3) = 4.05, p > .05$ ), confirming partial strong invariance (Table 6). Testing the strict partial invariance model confirmed that the between group difference relates only to social network reciprocity intercept and not residual variances. Confirmation of partial measurement invariance allowed progression to testing structural invariance (Muthén & Christoffersson 1981).

First, the factor covariance, variances and means were successively constrained to equivalence across groups and model fit compared. Factor means and variances were equivalent. However, the covariance between social activity and community belonging for adolescents ( $BSI.2_{adolescent}$ ;  $\beta = .42, b = .13, p = .002$ ) was significantly reduced compared to young adults ( $BSI.2_{adult}$ ;  $\beta = .88, b = .25, p > .001$ ), suggesting greater inter-relatedness in the two social inclusion domains for young adults than adolescents.

In  $BSI.2_{adolescent}$ , neither defeatist performance nor need for approval beliefs predicted social activity (defeatist performance;  $\beta = -.20, b = -.11, p > .05$ , need for approval;  $\beta = .13, b = .07, p > .05$ ) or community belonging (defeatist performance;  $\beta = .07, b = .04, p > .05$ , need for approval;  $\beta = -.04, b = -.02, p > .05$ ). All paths were significant in model  $BSI.2_{adult}$ . Wald  $\chi^2$  tests were used to ascertain whether these associations with each self-belief were significantly different between groups. Wald tests confirmed that need for approval ( $p = .049$ ) and defeatist performance beliefs ( $p = .001$ ) predicted community belonging to a significantly greater extent for young adults compared to adolescents. Occupational hope predicted community belonging to a greater extent in  $BSI.2_{adolescent}$  ( $\beta = .44, b = .26, p < .001$ ) than  $BSI.2_{adult}$  ( $\beta = .22, b = .14, p < .05$ ), but this difference did not reach statistical significance ( $p = .13$ ). Group differences remained when controlling for mood.

### ***Analysis of mental health status***

Multi-group invariance testing was used to explore any differences between those participants self-reporting none ( $n = 246$ ) versus previous or possible ('not sure') mental health problems ( $n = 140$ ). Results suggested that the social inclusion measurement model retains the same structure within and across both groups, although social network size was greater in the 'none' group. Structural invariance testing suggested decreased social activity and community belonging in the 'previous/possible' group, plus greater variance within these social inclusion factors and covariance between them. Parameter comparison suggested that higher need for approval only predicts increased community belonging for people with no history of mental health problems, whereas social hope predicts social activity to a lesser extent, as compared to the previous/possible group. These findings confirm that the  $BSI.2$  model equally represents social inclusion for people reporting previous or possible compared to none, whilst providing preliminary evidence of some group differences.

## Discussion

### *The Beliefs in Social Inclusion model*

We present a novel exploratory model of social inclusion and its self-belief predictors within a healthy young population. The Beliefs in Social Inclusion model (BSI.2) suggests that social inclusion can be represented as two separate but related domains of social activity and community belonging, which are predicted by hopeful and dysfunctional beliefs about the self related to social/interpersonal and occupational life domains independently of mood, gender, and ethnicity. Social hope, need for approval and defeatist performance beliefs predicted both social activity and community belonging; occupational hope predicted only community belonging. The empirically explored structure of social inclusion is in keeping with its conceptualisation as a multidimensional construct comprising indices of social, occupational, community activity and subjective experience (Hall 2009; Morgan et al. 2007; Parr et al. 2004). The incomplete separation of indicators into social versus occupational domains was not as predicted but is understandable considering that most or even all occupations are enacted in a social sphere (Grant & Parker 2009).

The associations between defeatist performance beliefs, social and occupational hope and social inclusion follow theory that people's beliefs about themselves influence their behaviour (Safran & Segal 1996), that hopefulness motivates and sustains goal-directed action (Snyder 2002), and that dysfunctional attitudes lead to withdrawal from activity (Beck et al. 2009). Associations between all self-beliefs and both social inclusion domains (with the exception of occupational hope which did not predict social activity) supports the notion that domain-specific self-beliefs predict performance and experience in the respective domain (Snyder 2002) – albeit other domains as well.

Need for approval, ostensibly a negative self-belief which predicts greater symptoms in psychosis (Beck & Rector 2005; Lincoln et al. 2010), unexpectedly predicted greater social activity and community belonging in the current healthy population. A particularly low level of need for approval does not explain this finding; the mean in the current sample exceeds that of previous healthy young samples (de Graaf et al. 2009) and is more akin to young people experiencing depression (Whisman & Friedman 1998). We wonder therefore whether even high need for approval can be adaptive for healthy young people (Abela & Hankin 2008) if perchance, and perhaps unlike people with mental health problems, they believe they can attain the interpersonal approval so desired. Our data are partially consistent with this idea, for this positive predictive effect of need for approval disappeared when testing the model only for people reporting previous or possible mental health problems, although no interaction was observed between need for approval and social hope in our sample.

Evidence for our hypothesis that hopefulness protects against the detrimental impact of dysfunctional attitudes (Fredrickson 1998) was mixed. No interactions were observed with respect to social activity. The association between defeatist performance beliefs and community belonging was reduced when social hope was high and the association with need for approval was particularly positive when occupational hope was high. However, when occupational hope was low, high defeatist performance beliefs actually predicted increased community belonging. We hypothesise that people

with high defeatist performance beliefs may be defensively pessimistic and create unrealistically low targets and expectations for themselves; a strategy which improves anxious peoples' goal attainment (Norem & Chang 2002). Thus, if people with high defeatist performance beliefs are anxious about failure, the exhibition of low occupational hope may be a defensive pessimist strategy which actually improves their perceived community belonging.

### *A developmental lens*

We hypothesised that more objective indices of social activity would be greater for adolescents and more subjective, occupational and community indicators of inclusion would be greater for young adults, due to the former's developmental prioritisation of peer relationships and the latter's prioritisation of occupation and community involvement (Hartup & Stevens 1997; Iarocci et al. 2008). However, levels of social activity and community belonging did not differ between groups. Progressively complex developmental transitions and delays in when it is normative to achieve certain developmental milestones (Arnett 2000; Farre et al. 2015) may have had an impact here. The inclusion of young adults aged up to 36 years is a key strength of the current paper. When considering 'developmentally appropriate' interventions, previous work has tended to focus more purely on adolescents or perhaps the youngest of young adults. Associations between social inclusion domains did differ by age; reduced covariance between social activity and community belonging was observed for adolescents, perhaps suggesting that community belonging is associated with additional unmodelled factors in adolescents, such as school connectedness.

Associations between beliefs about the self and social inclusion also differed across age. Despite lower absolute levels compared to adolescents, defeatist performance beliefs (negatively) and need for approval (positively) predicted social inclusion only for young adults. Our findings are consistent with the theory that negative self-beliefs influence behaviours more when people reach cognitive maturity (i.e. early adulthood; D'Alessandro & Burton 2006). Theory that need for approval is adaptive for adolescents but confers vulnerability when no longer considered normative (Abela & Hankin 2008), thus perhaps changing societal conceptualisations of what is normative for modern young people (Arnett 2000) may delay and prolong the social benefits of need for approval, i.e. thus need for approval having a negligible impact for adolescents and a positive impact for young adults before becoming pervasive later in life. We wonder whether the extent to which both adolescents and young adults now live their lives online – thus seeking and attaining instantaneous approval from others – may itself normalise prolonged need for approval. Use of online socialising is actually greater for young people with a greater need for approval (Weidman et al. 2012); thus perhaps negating the detrimental impact of need for approval on social outcomes observed in other studies. Future work is needed to replicate these age differences and consider both younger adolescents and older adults to understand the potential impact of a hopeful and dysfunctional self-view across the life course.

No a priori predictions were made regarding age-related differences in hopefulness; however our results point towards a greater association between hopefulness and social inclusion in adolescence. We hypothesise that repeated experiences of failure or struggle to attain goals may make young adults more aware of their limitations and blockages and thus undermine the benefits of hope (Byrne 1998).



Adolescents, on the other hand are less realistic and over-endorse their own competence (Schunk & Meece 2006), which may mean they strive further to achieve even more ambitious goals (Lachman & Burack 1993; Snyder et al. 2006). It may also be that adolescents' goals are more synchronous, whereas for young adults more conflicting goals (e.g. family versus friends versus work) may limit the impact of even high hopefulness (Shah & Kruglanski 2000).

### ***Limitations***

Future work should involve cross-validation of the BSI model to further refine the construct and increase generalisability (MacCallum & Austin, 2000). Limitations of the current study include an inability with the present sample size to conduct higher order factor analysis of all social inclusion questionnaire items; a method which may have resulted in greater separation between social and occupational and subjective and objective indicators. A greater focus on objective measures of functioning is also warranted as recent research suggests actual weekly hours spent in constructive economic and other structured activity represents an important way to conceptualise social recovery in clinical populations with meaningful comparisons in the general population (Hodgekins et al. 2015). Furthermore, clinical research suggests, in addition to beliefs about the self, neurocognition, social cognition and metacognition are relevant to social and occupational functioning and thus their inclusion would arguably improve prediction of social inclusion across populations. In addition, there was increased chance of attrition of people not born in the UK in the current research, and consequently, uncertainty regarding the generalisability of current findings to those born outside of the UK.

### ***Recommendations for further research and practice***

Youth and mental health professionals should be aware that in adolescence the absence of hopefulness, rather than the presence of dysfunctional attitudes, may especially increase withdrawal from social activity and reduced sense of community belonging. Social exclusion is a clear risk factor for mental health problems (Fowler et al. 2010; Kessler et al. 2007) and experiencing social disability itself then reinforces low hopefulness (Cohn 1978), identifying young people with low hope and reduced social inclusion is especially important. There is emerging evidence too that preventative interventions, which traditionally may have focused on negating risks, may be more effective if focused on promoting strengths such as hopefulness (Kwon et al. 2015). Our evidence supports broadening the scope of such preventative interventions in youth beyond the more commonly espoused foci of mood, general wellbeing and academic achievement or treating mental health problems, toward the improvement of hope and young people's social inclusion.

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Table 1

*Exploratory factor loadings (> .3) for individual Social Inclusion Measure (SIM; Secker et al., 2009) items*

Item	SC	CI	PI	BMO
I have friends I see or talk to every week	.82			
My social life has been mainly related to [members of my group] (R) <sup>a</sup>	.36			
I have felt accepted by my friends	.69			
I have been out socially with friends (for example to the cinema, restaurant, pub, clubs)	.70			
I have been involved in a group, club or organisation that is not just for [members of my group] <sup>b</sup>				
I have learnt something about other peoples' cultures		.69		
I have been to new places		.54		.34
I have felt that some people look down on me because [I am a member of my group] (R) <sup>a</sup>		.32		
I have felt it was unsafe to walk alone in my neighbourhood in daylight (R) <sup>a</sup>		.41		
I have done some cultural activities (for example gone to a library, museum, gallery, theatre, concert)		.54		
I have felt clear about my rights			.81	
I have felt free to express my beliefs (for example political or religious beliefs)			.71	
I have felt accepted by my family				.52
I have felt accepted by my neighbours <sup>a</sup>				.38
I have felt that I am playing a useful part I society			.38	.67
I have felt that what I do is valued by others				.75

*Notes:* SC= social contact, CI= cultural inclusion, PI= political inclusion, BMO= belonging and meaningful occupation. <sup>a</sup>Items removed from derived subscales to improve internal reliability. <sup>b</sup>Item did not load onto any factor >.3. (R)= reverse-scored item.

Table 2

*Exploratory factor loadings (> .3) for social inclusion two factor solution*

Subscale indicator	Social activity	Community belonging	n (%) present
Social network size	.54		382 (98.7)
Social network reciprocity	.64		348 (89.9)
Social contact	.73		338 (87.3)
Belonging and meaningful occupation		.98	340 (87.9)
Cultural inclusion		.30	342 (88.4)
Political inclusion		.36	339 (87.6)

Table 3

*Descriptive statistics and bivariate correlations among hope (social and occupational) and dysfunctional attitudes (defeatist performance beliefs and need for approval) using listwise deletion*

	M (SD)	Sample range	Possible range	n (%) present	SH	OH	DP	NA
Social hope (SH)	5.23 (1.27)	1.46- 7.75	1-8	338 (87.34)	1			
Occupational hope (OH)	6.03 (1.02)	2.25- 7.94	1-8	331 (85.53)	.53***	1		
Defeatist performance beliefs (DP)	3.29 (1.07)	1.07- 6.60	1-7	322 (83.20)	-.40***	-.25***	1	
Need for approval (NA)	4.09 (1.00)	1.20- 6.60	1-7	320 (82.69)	-.23***	-.19**	.51***	1

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

Table 4

*Beliefs in social inclusion model (BSI.2) parameter estimates*

Parameter	St.	Unst.	SE	<i>p</i>	<i>R</i> <sup>2</sup>
<i>Measurement Model</i>					
Social Activity					.42
Social contact	.73	1	-	-	.54
Social network size	.55	14.78	2.14	<.001	.30
Social network reciprocity	.59	1.07	0.15	<.001	.35
Community Belonging					.54
Belonging and meaningful occupation	.87	1	-	-	.76
Cultural inclusion	.51	.60	0.08	<.001	.26
Political inclusion	.56	.63	0.08	<.001	.31
<i>Structural Model</i>					
Covariance Social activity and Community belonging	.40	.07	0.02	.001	
Social activity on Defeatist performance beliefs	-.30	-.15	0.04	<.001	
Social activity on Need for approval beliefs	.26	.14	0.05	.003	
Social activity on Social hope	.52	.22	0.04	<.001	
Community belonging on Defeatist performance beliefs	-.25	-.15	0.04	<.001	
Community belonging on Need for approval beliefs	.12	.08	0.04	.05	
Community belonging on Social hope	.43	.21	0.03	<.001	
Community belonging on Occupational hope	.29	.18	0.04	<.001	

Table 5

*Model key*

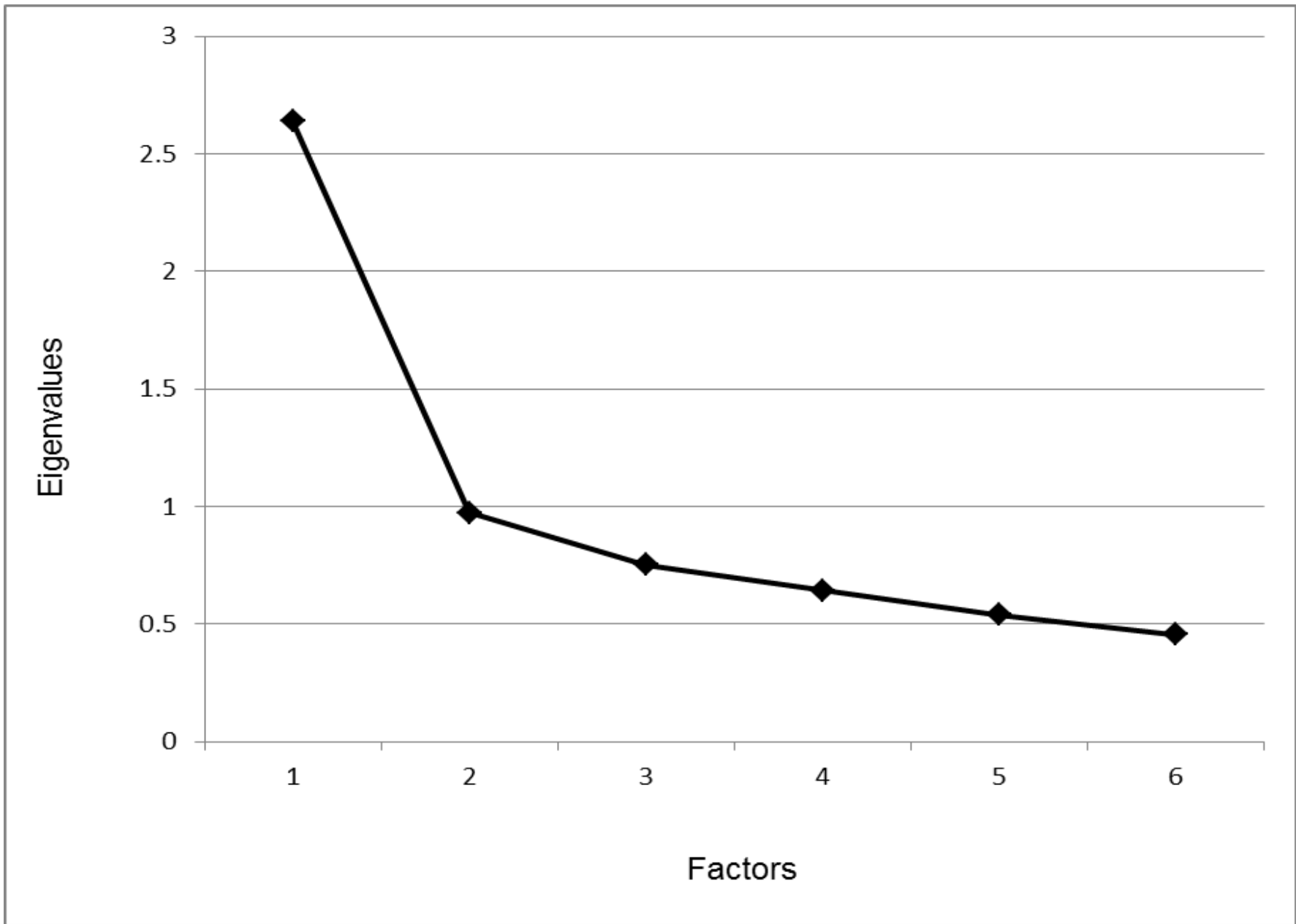
Model number		Model description
BSI.1		Social activity and Community belonging (LVs; MM) regressed onto four self-beliefs (OV; SM); Social hope, Occupational hope, Need for approval and Defeatist Performance. Covariances amongst self-beliefs estimated.
BSI.2	Final BSI model.	As BSI.1 except path between Occupational hope (OV) and Social activity (LV) set to zero.
BSI <sub>rev</sub>		Reverse model with SM regressed onto MM.
BSI.3		BSI.2 with addition of mood (OV) as covariate. MM regressed onto mood.
BSI.4		BSI.2 with addition of gender (OV) as covariate. MM regressed onto gender.
BSI.5		BSI.2 with addition of birthplace (OV) as covariate. MM regressed onto birthplace.
BSI.6		BSI.2 with addition of centered self-belief interaction terms in SM; defeatist performance beliefs x occupational hope, defeatist performance beliefs x social hope, need for approval x social hope, and need for approval x occupational hope.
BSI.2 <sub>adolescent</sub>		BSI.2 invariance model with adolescents (14-18 years) compared to young adults (19-36 years).
BSI.2 <sub>adult</sub>		BSI.2 parameters with young adults (19-36 years) compared to adolescents (14-18 years).

*Notes:* LV= Latent variables, OV= observed variable, MM= measurement model, SM= structural model.

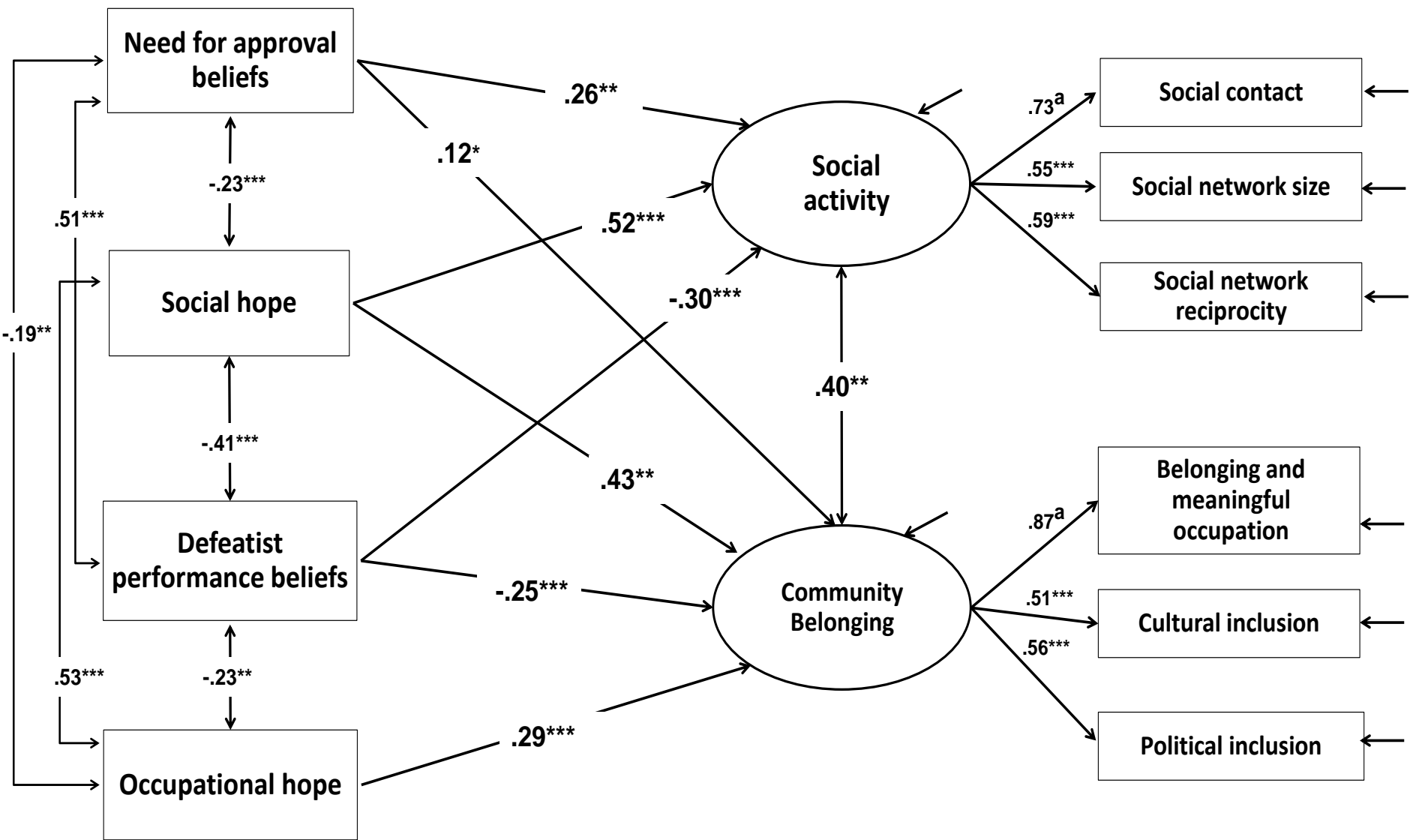
Table 6

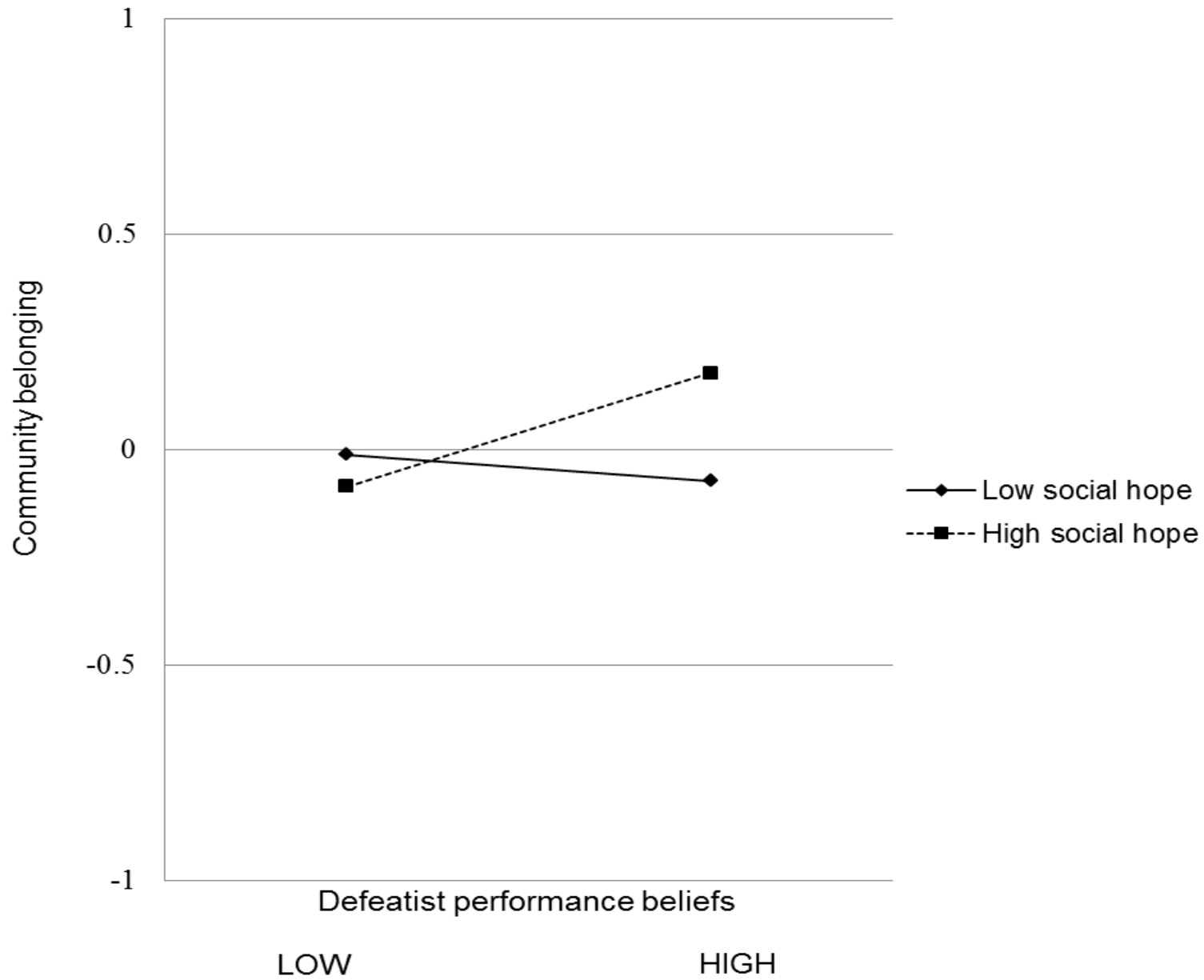
Multi-group analysis of the Beliefs in Social Inclusion model (BSI.2) comparing adolescents (14-18 years;  $n = 152$ ) and young adults (19-36 years;  $n = 235$ ).

Model	$\chi^2$	df	$\chi^2/\text{df}$	$p$ - value ( $\chi^2$ )	CFI	RMSEA	SRMR	$\Delta\chi^2$ (df)	$p$ - value ( $\Delta\chi^2$ )
<i>Single group (dimensional invariance)</i>									
Younger	7.67	8	.96	.47	1.00	.00	.04	-	-
Older	6.78	8	.85	.56	1.00	.00	.03	-	-
<i>Measurement invariance</i>									
Configural	14.29	16	.89	.58	1.00	.00	.04	-	-
Weak	17.26	20	.86	.64	1.00	.00	.05	2.78(4)	> .20
Strong (partial)	20.94	23	.91	.58	1.00	.00	.06	4.05(3)	> .20
Strict (partial)	22.99	29	.79	.78	1.00	.00	.07	2.41(6)	> .20
<i>Structural invariance</i>									
Equal factor covariance	27.14	30	.90	.62	1.00	.00	.11	5.90(1)	< .05
Equal factor variance	23.14	31	.75	.84	1.00	.00	.07	.13(2)	> .95
Equal factor means	27.51	31	1.92	.89	1.00	.00	.08	5.16(2)	> .05

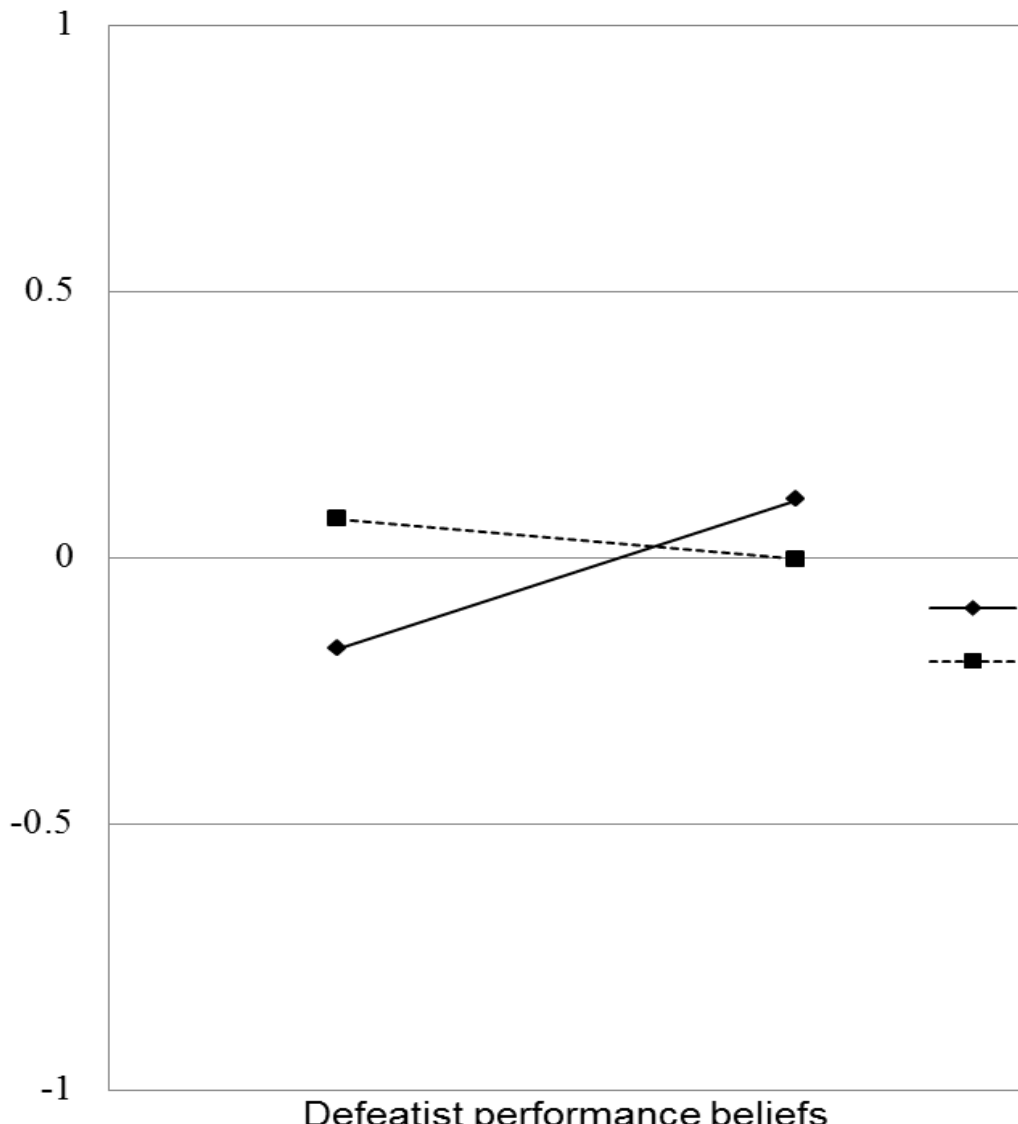








Community belonging



LOW

HIGH

—◆— Low occupational hope  
- -■- - High occupational hope

