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Ceremonies of the whole

Does social participation moderate the mood consequences of neuroticism?

■ **Abstract** *Background* The aim of this research was to test whether social participation is associated with improvements in mood and well-being, and in particular to test whether social participation might moderate the chronic distress associated with high levels of neuroticism (N). *Method* A rural Australian sample of 394 adults (54.3% female) completed questionnaires and participated in follow-up interviews. Social participation was indexed by community group membership, and operationalised for analysis in two forms: extent (number of group memberships) and presence (zero vs. one or more memberships). Mood was measured as Positive Affect (PA) and Negative Affect (NA) as rated on the Positive and Negative Affect Schedule and well-being was measured with Diener's Satisfaction with Life (SWL) questionnaire. Items from Goldberg's International Personality Item Pool were used to measure N. *Results* The extent of social participation was significantly associated with all three mood/well-being variables in bivariate analyses, and remained as a significant net predictor of PA and NA ($\beta = 0.11$, $P < 0.05$, $\beta = -0.13$, $P < 0.05$) when modeled with age, gender and income. In parallel, categorical social participation was found to be significantly associated with PA, NA and SWL in bivariate analyses and in multivariate analyses controlling for age, gender and income ($\beta = 0.11$, $P < 0.05$, $\beta = -0.15$, $P < 0.01$ and $\beta = 0.11$, $P < 0.05$, respectively). The interaction term N*Social interaction was significantly correlated with NA in bivariate analyses involving both continuous ($r = -0.14$, $P < 0.01$) and categorical ($r = -0.13$, $P < 0.01$) measures of social participation, and in its continuous form remained a significant net predictor of NA after controlling for the main effects of N and Social participation ($\beta = -0.09$, $P < 0.05$). *Conclusions* The present findings extend upon existing evidence that social participation tends to be positively associated with mental health by demonstrating the predicted effect across a comprehensive set of mood/well-being variables. Preliminary evidence was also obtained that social participation may serve as a moderator of the chronic distress associated with N. It is concluded that further research seeking to confirm the causal direction of the identified pathways is warranted.

■ **Key words** social participation – neuroticism – mood

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Introduction

Almost a century ago, it was observed that western societies are characterized by a dearth of collective life [e.g., 1], and that the scarcity of community group membership, religious congregation and other "ceremonies of the whole" [von Hofmannsthal, cited in 2] might contribute to increased individual anxiety and lowered well-being. Such communitarian ideas can be traced throughout sociology and political science, arguably culminating in the influential contemporary

notion of social capital [3]. A key premise of this literature is that there are individual, and/or group level differences in social capital, which, it is predicted, generate individual and/or group level differences in health and well-being.

Investigations to date generally support the hypothesis that measured variables relating to social capital correlate with psychological outcomes [e.g., 4, 5], but unresolved definitional and level-of-analysis issues render the literature ambiguous [6, 7]. One well established aspect of the complex social capital construct is *social participation*, which can be defined as the individual level propensity to take part in activities, groups and associations [8]. Social participation is recognised as an important mediator of health [9], and has shown positive relationships with physical health [10] and health-related behaviours [8, 11, 12]. The small set of existing studies tend to support a positive association between social participation and mental health [13], but at least one study has reported the opposite effect [14], underscoring the potential for multiples pathways of relationship.

The first aim of the present research was to test whether social participation is associated with better mental health and well-being in a rural Australian sample. An advance over previous research was the operationalisation of mood and well-being in measures of positive affect and negative affect [PA and NA, 15] and satisfaction with life [SWL, 16]. These three variables are not only sensitive to individual differences in the non-clinical range [17], but also believed to provide a comprehensive assessment of affective/well-being states [18].

A further advance over existing studies was the investigation of social participation in the context of personality. The personality trait neuroticism [N, 19] is the strongest single predictor of mental health and well-being [20]. Recognised in all major personality taxonomies, N has large effect-size associations with anxiety and depression symptoms as well as PA, SWL and particularly distress as measured in NA [21, 22]. In this light, it seems useful to explore possible interactions between N and social participation in the determination of mood and well-being.

The present project focussed on one particular possible relationship between social capital and N, namely, does social participation moderate the effect of N on distress as measured in NA? A number of mechanisms could plausibly support this relationship: social participation might provide the opportunity to reality test unproductive assumptions [23], it might provide distraction from anxiogenic thoughts, it might facilitate venting and support, or provide a bridge to more active professional input. The present study was not designed to parse possible pathways, but rather to test for the presence of the relationship. The question is clinically significant because, relative to other forms of interpersonal interaction (e.g., intimate relationships), social and civic participation is arguably emotionally uncomplicated and structurally facilitated [24]. If it could be demonstrated that social participation enhances mood and well-being and furthermore moderates the negative affective consequences of N, social participation might constitute a viable well-being intervention for temperamentally vulnerable individuals.

The present study

The overarching aim of the present study was to investigate the proposition that social participation is associated with positive psychological states. It was hypothesized, firstly, that social participation would be correlated with positive mood and well-being; it was specifically predicted that social participation would be positively associated with PA and SWL and negatively associated with NA. The second hypothesis was that social participation would moderate the known relationship between N and distress, as measured by NA.

Presumably because of incomplete analysis of the construct itself, there is no consensus as to the best operationalisation of social participation [13]. In the present study, social participation was assessed using face-to-face interviews asking about membership of community groups and organisations. Based on previous investigations of social capital in rural Australia [25], we invited participants to consider nine categories of group: job-related associations, sporting groups, recreational groups, church-related activities, fraternal services, civic/political groups, volunteer organisations, senior citizens groups and "other". This data was used to generate two different operationalisations of the social participation construct. First, social participation was defined continuously as the number of memberships reported. This operationalisation permitted the exploration of both linear and more complex relationships between predictor and dependent variables. Second, social participation was defined dichotomously as zero vs. one or more group memberships: this dichotomous categorization permitted comparison with research that highlights social isolation [the absence of participation, 26] as a central driver of social participation effects on mood and well-being. It was reasoned that the heuristic benefits of adopting two perspectives on the dependent variable outweighed the costs in terms of repetition of analyses.

Methods

▪ Design

A cross-sectional interview-based design was used to test the hypotheses. Participants were individuals who volunteered to participate in an interview, subsequent to taking part in a mail-out

survey of mental health and well-being in rural Australia [see, 27]. The study was conducted in rural Victoria in 2003–2004.

■ Sample

Participants in the original mail-out study who indicated their willingness to be involved in future research ($n = 1023$) were invited to participate. A total of 394 of these consented to take part in the present study, a participation rate of 38.5%. Mean age of the sample was 53.6 (SD = 15.9), and 217 participants (54.3%) were female. In terms of location of residence, 102 (25.9%) were from a large regional centre, 133 (33.8%) from larger rural towns (population 5,000–20,000), and 159 (40.4%) were from small rural towns (population <5,000).

■ Materials

Participants completed a survey containing demographic questions and a series of scales and additional items. Beyond age and gender, gross weekly household income was assessed on a four-category ordinal scale. As noted above, social participation was measured on a series of nine items, based on the work of Bullen and Onyx [25]. At interview, participants were asked whether or not they were involved in each of the nine categories of organisation/group, and, if so, to name or describe the organisation. The specific wording was, "Please indicate which, if any, of the following clubs or organisations you belong to." Examples were provided for each of the first seven categories: Job related associations, such as business/ professional organisations, labour unions; Sporting groups, such as football clubs, cricket clubs, bike-riding groups; Recreational groups, such as card clubs, car clubs; Church related groups, such as committees, mens/womens groups, choirs; Fraternal services, such as Rotary Clubs, Lions, Hospital Auxiliaries; Civic—political groups, such as political parties, chambers of commerce, parent–teacher associations; Volunteer organisations, such as CFA and Landcare. No examples were provided for Senior Citizens groups or Other groups.

Outcome measures were selected to be sensitive to variations in mental health, broadly defined [21, 28]. To this end, Positive Affect (PA) and Negative Affect (NA) were measured on the 20-item Positive and Negative Affect Scales [PANAS, 29], the most commonly used measure of the popular two-dimensional model of mood [30]. Various time-frames have been used with the PANAS: here, participants reported on their mood over the past 7 days. Diener's five-item Satisfaction with Life scale [SWL, 16] was used to measure the cognitive component of subjective well-being. A range of validating data exists for the PANAS [e.g., 17] and the SWL [e.g., 31].

The accepted five factor model of personality [FFM, 32] identifies five traits (neuroticism [N], extraversion [E], openness to experience [O], agreeableness [A] and conscientiousness [C]). The traits of the FFM were measured here on 50 items from the International Personality Item Pool [IPIP, 33]. Scales based on the IPIP items have demonstrated adequate internal reliability [generally ranging from .75 to .85, 34], and large effect size convergent correlations with the more commonly used NEO personality inventory of Costa and McCrae [35].

■ Procedure

Interviews were conducted in local community health centres by researchers (psychology graduates) who were both experienced in qualitative data collection, and specifically trained in the current protocol. Self-report questionnaires were completed by participants prior to the interview and returned to the interviewer during the visit. The remoteness of participants' location of residence was calculated using the Accessibility/Remoteness Index of Australia [ARIA, 36], a measure of the accessibility of services and social opportunities, based on road distances to centres of various sizes. The study was approved by the human research ethics committee of the Bendigo Health Care Group.

Table 1 Distributions, internal reliability and comparable published means for the four scales of the study

	M	SD	Cronbach's alpha	Skew	Published mean
N	23.79	8.10	0.86	0.54	24.4[a]
PA	32.74	8.27	0.90	−0.28	32.1[b]
NA	15.76	6.11	0.87	1.46	19.5[b]
SWL	25.17	6.62	0.92	−0.89	24.8[b]

Note: N = neuroticism
[a] Mean from a large Australian community sample [27]
[b] Mean from a large Australian community sample [37]

■ Data analysis

After exploring the distributions of the major scales, bivariate correlates of social participation were investigated using Pearson's correlations, curve-fitting analyses (to explore possible nonlinear relationships) and one-way ANOVA. Subsequently, the hypothesized relationships between continuous social participation and the three mood/well-being variables were tested using a series of standard linear regressions in which age, gender and income were added to the predicting set along with social participation. Categorical social participation (defined dichotomously as membership of zero vs. one or more groups) was investigated in the same way.

Analysis of the hypothesized moderating effect of social participation on the NA consequences of N was tested by, firstly, creating a multiplicative N*Social participation interaction term (variables centered prior to multiplication). After preliminary investigation of bivariate correlations, the interaction term was used in a hierarchical regression onto NA, with the two main effects (N and social participation) entered at Step 1, and N*Social participation at Step 2. A significant interaction term component in the final model would constitute evidence of moderation. In parallel, the analysis of moderation using categorical social participation involved the creation of an N*Social participation (categorical) term, which was investigated firstly in bivariate correlations and subsequently in a hierarchical regression.

Results

■ Descriptive analyses

Distributions of the study's scales were comparable with those reported in other samples, and internal reliability alphas were all adequate against the criterion of .70 (see Table 1). To address the marked deviation from normality in the distribution of NA, a base10 log transform was applied, generating a variable with an approximately normal distribution. The pattern of findings was identical, however, when NA was used in raw and transformed forms, so only the analyses based on raw NA data are presented here.

Shown in Table 2 below are the frequencies of membership of the nine categories of community organisation. By a substantial margin, the most commonly indicated involvement was with sporting groups. The residual "Other groups" category revealed a cornucopia of community groupings, such as the "Stitch and Bitch" private sewing group, belly dancing group, male choir, hospital board of directors, the orchid judging committee, and so forth.

Table 2 Frequencies of membership of nine types of community organisation

Organisation type	n = Member (valid percent)
Job-related association	88 (23.9)
Sporting groups	176 (46.1)
Recreational groups	87 (23.2)
Church-related activities	81 (21.4)
Fraternal services	56 (14.9)
Civic/political groups	39 (10.6)
Volunteer organisation	85 (22.8)
Senior citizens groups	20 (5.4)
Other	80 (22.5)

Viewed continuously, the degree of social participation was distributed around a mean of 1.81 (SD = 1.35), with a moderate positive skew (0.65). The modal number of group memberships was one (n = 118, 29.9%), and the majority of respondents (n = 328, 83.2%) reported membership of at least one organisation.

■ Demographic correlates

Whether measured continuously or categorically, social participation did not show a marked relationship with gender, age or remoteness of residence. The extent of social participation was not related to gender ($F(1,392) = 0.85$, n.s.), age ($r = 0.03$, n.s.) or ARIA value ($r = 0.05$, n.s.). Similarly, no association was found between dichotomous social participation and gender (Chi-square(1) = 0.001, n.s.), age ($F(1,386) = 0.04$, n.s.) or ARIA value ($F(1,392) = 1.92$, n.s.). A small significant correlation was found between the extent of social participation and income ($r = 0.11$, $P < 0.05$), and the association between categorical social participation and income approached significance ($F(1,373) = 3.88$, $P = 0.05$).

■ Mood and well-being correlates of social participation

Bivariate analyses found that the extent of social participation had significant linear relationships with each of the mood/well-being variables ($r = 0.12$, $r = -0.14$ and $r = 0.13$ for PA, NA and SWL, respectively, $P < 0.05$ in each case). Curve estimation analyses confirmed significant linear polynomial effects between social participation and PA ($F(1,373) = 4.99$, $P < 0.05$), NA ($F(1,378) = 7.87$, $P < 0.01$), and SWL ($F(1,373) = 4.99$, $P < 0.05$). A quadratic effect was also significant for the relationship between social participation and NA ($F(2,377) = 4.09$, $P < 0.05$), and SWL ($F(2,379) = 3.19$, $P < 0.05$), and approached significance for PA ($F(2,372) = 2.94$, $P = 0.05$). In each case, the quadratic component represented a tapering of the trend for social participation to have positive psychological outcomes at very high levels of participation.

The three mood and well-being variables were then used as dependent variables in a series of standard linear regressions. Along with the extent of social participation, age, gender and income were included in the predicting set. As summarized in Table 3, net of the effects of age, gender and income, the extent of social participation was found to be a significant, albeit small effect size predictor of PA (a positive relationship) and NA (a negative relationship), but the significant bivariate association found between social participation and SWL was not reproduced in the multiple regression analyses.

In accord with the preceding analyses, a significant bivariate relationship was found when ANOVA was used to compare mean mood/well-being levels against categorical social participation (PA: $F(1,373) = 4.77$, $P < 0.05$; NA: $F(1,378) = 10.48$, $P < 0.01$; SWL: $F(1,380) = 7.19$, $P < 0.05$). The direction of the effect was as expected, with the non-participation group having lower means for PA, SWL and higher NA.

Table 3 Summary of standard linear regressions onto the dependent variables PA, NA and SWL, in each case, predictor variables are age, gender, income and social participation. Statistics shown are B, 95% confidence intervals (CI) for B, and β. Upper and lower panels of the table contain analyses for continuous and dichotomous participation respectively

		PA			NA			SWL		
		B	95% CI B	β	B	95% CI B	β	B	95% CI B	β
Continuous	Age	0.05	−0.01, 0.11	.08	−0.09	−0.13, −0.05	−0.24***	0.07	0.02, 0.11	.16**
	Gender	−0.46	−2.21, 1.29	−0.02	−0.84	−2.08, 0.40	−0.07	−0.54	−1.90, 0.83	−.04
	Income	.86	−0.01, 1.74	.10	−0.35	−0.97, 0.27	−0.06	1.77	1.09, 2.44	.28***
	Social Participation	2.49	.10, 4.88	.11*	−.56	−1.02, −0.10	−.13*	.47	−.03, 0.98	.09
		Adjusted R^2 = 0.017, F(4,347) = 2.49*			Adjusted R^2 = .066 F(4,352) = 7.25***			Adjusted R^2 = 0.086, F(4,353) = 9.45***		
Dichotomous	Age	0.04	−0.02, 0.10	.08	−0.09	−0.13, −0.05	−0.24***	0.07	0.03, 0.11	.16**
	Gender	−0.38	−2.13, 1.37	−0.03	−0.77	−2.0, 0.46	−0.06	−0.58	−1.94, 0.79	−0.04
	Income	0.81	−0.08, 1.69	0.11	−0.36	−0.97, .25	−0.06	1.78	1.11, 2.45	0.28***
	Social Participation	.69	.04 − 1.35	.11*	−2.57	−4.25,−.90	−.16**	2.06	.22, 3.90	.11*
		Adjusted R^2 = 0.016 F(4,347) = 2.44*			Adjusted R^2 = .074 F(4,352) = 8.13***			Adjusted, R^2 = .083 F(4,353) = 9.04***		

*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$

Table 4 Summary of standard linear regressions onto the dependent variable NA. In each case, predictor variables are N, social participation and the N*Social participation interaction term. Upper and lower panels of the table contain analyses for continuous and dichotomous participation respectively

	DV: NA			
		B	95% CI B	β
Continuous	N	0.41	0.34, 0.47	0.54***
	Social participation	−0.35	−0.73, 0.04	−0.08
	N*Social participation	−0.05	−0.10, −0.00	−0.09*
	Adjusted $R^2 = 0.32$ $F(3,375) = 60.77$***			
Dichotomous	N	0.41	0.35, 0.47	0.55***
	Social participation	−0.137	−2.79, 0.05	−0.08
	N*Social participation	−0.09	−0.25, 0.07	−0.05
	Adjusted $R^2 = 0.32$ $F(3,375) = 59.63$***			

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

When multivariate regressions were calculated controlling for age, gender and income, categorical participation was a significant predictor of PA, NA and SWL (Table 3).

Does social participation moderate the link between N and mood/well-being?

With social participation conceptualized continuously, the multiplicative interaction term N*Social participation had a mean of −1.30 (SD = 10.68) and was approximately normally distributed (skew = −0.88). The bivariate correlation between this interaction term and NA was significant and negative ($r = −.14$, $P < 0.01$). As expected, N exhibited a highly significant correlation with NA ($r = .56$, $P < 0.001$), as well as PA and SWL ($r = −0.51$, $r = −0.54$, respectively, $P < 0.001$ in each case). Results of a standard linear regression onto NA, with predictors of N, social participation and the N*Social participation interaction term are shown in Table 4. Consistent with the bivariate analyses, the interaction term was a small but significant effect in the model predicting NA. The derived β value was negative, indicating that the direction of the effect was as expected, viz., the strong positive link between N and NA was weakened by social participation.

With social participation conceptualized as categorical, the multiplicative interaction term N*Social participation had a mean of −.34 (SD = 3.31). Pearson's correlation between this term and NA was again significant and negative ($r = −0.13$, $P < .05$). Multivariate testing of the moderation hypothesis in this form found, as with the dimensional definition, a negative association between the interaction term and NA. As shown in Table 4, however, net of the effects of N and categorical social participation, the interaction term in this categorical form was not significant.

Discussion

To our knowledge, this is the first study to directly investigate the association between social participation (defined as membership of community organisations)

and mood states. The study generated useful descriptive data on the quality and quantity of social participation in a rural sample. It is noteworthy, for example, that participation was the norm: 83.2% of interviewees reported being involved in at least one community organisation. Consistent with other studies [38] and our impressions from qualitative research in these communities [39], sporting group membership was by far the most common form of participation. Future research could usefully compare this "participation profile" with that reported in an urban environment, or indeed compare the profile in expanding vs. declining rural locales [see, 40]. Social participation was unrelated to the demographic variables age, gender and remoteness of residence in this sample, but, in line with other reports [e.g., 11], social participation tended to increase with gross weekly income.

As expected, social participation was found to have small but statistically significant associations with positive psychological states, as operationalised in higher PA, lower NA and higher SWL. This pattern of findings, which arose under both continuous and dichotomous definitions of social participation[1], is consistent with the general thrust of the evolving social capital literature [e.g., 4, 5], classical sociology [e.g., 1] and related arguments from other fields [e.g., 41]. It is also consistent with the weight of existing research into social participation (variously measured) and mental illness [13]. A unique feature of the present data, however, is demonstration of the expected effect in psychometrically rigorous outcome variables that go beyond mental health measures. In contrast to vulnerability measures such as the General Health Questionnaire [e.g., 7], and indices of mental disorder [e.g., 13], the present dependent variable set (PA, NA and SWL) can be considered a comprehensive measure of the spectrum of mood and well-being in the general population [18]: The present data suggests that all aspects of the mood and well-being

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[1] A significant bivariate association between continuous social participation and SWL became a non-significant trend with the inclusion of age, gender and income in regression analyses, apparently due to the covariation between social participation and income in the context of a strong relationship between income and SWL.

domain may be linearly associated with social participation. Future research could usefully build on this finding by exploring the potentially different mechanisms by which group membership might affect NA [e.g., distraction, 42], PA [e.g., socializing, 43] and SWL [e.g., sense of belonging, 24].

In recognition of unresolved definitional issues, the study's predictions were tested under continuous and dichotomous operationalisations of social participation. Although the pattern of findings was similar from both viewpoints, heuristic benefits were achieved. The continuous measure provided preliminary evidence of a "dose-response" relationship between the extent of social participation and positive mood/well-being: this data suggests not only that participation might be salubrious, but also at least partly proportional to psychological health. A potentially important qualification to this conclusion is the evidence from curve-fitting analyses that the linear association between participation and positive social outcomes might taper off at higher levels of participation. As noted above, existing research into social participation has not consistently found social participation to be a correlate of positive mental health [14]. Future research could usefully investigate pathways by which high levels of group membership might, in some contexts, tend to correlate with higher levels of distress or depression symptoms.

Social isolation is a precursor to lowered mood [e.g., 44] and an important concept in models of the development of psychological vulnerability [e.g., 45]. Therefore it might have been expected that dichotomous social participation (zero vs. one or more memberships) would be the major explanatory factor in the present data. However, as noted above, the pattern of findings was similar under both categorical and continuous definitions and there was no evidence that the former was a stronger predictor. It is provisionally concluded that social participation cannot be reduced to the categorical presence vs. absence of social isolation, and that social participation may be most profitably operationalised in continuous terms.

The novel hypothesis that social participation would moderate the effect of N on NA was supported. The N*Social participation interaction term reached multivariate significance when social participation was operationalised continuously, and showed a trend in the expected direction when categorical participation was used in the interaction term. As the difference between these two findings is likely due to lower statistical power of the categorical variable [46], it can be provisionally concluded that social participation may have a beneficial effect on the state distress that is a key feature of N. Consistent with existing research on environmental moderation of N's effect on NA [see, 47], the magnitude of the moderation effect was small. The novel finding warrants more intensive exploration, however, because of its potential applied significance. In comparison to other potential inter-

personal strategies for enhancing well-being [such as the development of intimate relationships, 4], increased community group membership might be a relatively straightforward goal for individuals with problematic attachment styles.

The study had a number of limitations. Most importantly, a causal idea (that participation influences mood and well-being) was tested in a correlational design. It is conceivable that, counter to the pathways presupposed here, higher levels of negative affect are a barrier to social participation. The findings therefore await longitudinal replication. Second, sampling bias may have resulted from the derivation of the sample from individuals who had previously responded to a mail-out survey. Moreover, participation relied on the mobility to attend community health centres, further increasing the likelihood that the present results may not generalize to the population at large. Third, we focused on rural communities because of our interest in the emotional and mental health singularities of this group [27, 48, 49]. We have some data suggesting that social participation might be more valued in rural communities [39], so further research is necessary before generalizations beyond rural populations can be made. Finally, the present measure of social participation did not distinguish between, for example, the occasional player and the club treasurer in terms of their engagement with the bowling club. The relatively blunt measure used here nonetheless generated interesting findings, encouraging future research to further unpack the social participation construct.

Conclusion

Social capital has previously been investigated as a moderator of macro-level challenges to well-being, such as service withdrawal [50] and social antagonisms [51]. To our knowledge, this is the first study to test whether one dimension of social capital, social participation, can moderate the temperamental disposition to negative mood states. Positive findings here encourage further exploration of the individual level relationships between social capital, emotional vulnerability and well-being outcomes, as well as further exploration of the social participation construct itself. More generally, the present conclusions highlight a fruitful nexus between sociological and psychological constructs in the explanation of mental health and well-being.

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