



## #BeeWell Evidence Briefing 4

Do patterns of young people's participation in arts,  
culture and entertainment activities predict their  
later wellbeing?

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Emma Thornton, Neil Humphrey, Jose Marquez &  
Kimberly Petersen



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The following authors contributed directly to this report: Emma Thornton<sup>1</sup>, Kimberly Petersen<sup>2</sup>, Jose Marquez<sup>1</sup>, & Neil Humphrey<sup>1</sup>

<sup>1</sup>Manchester Institute of Education, University of Manchester, UK

<sup>2</sup>School of Education, University of Leeds, UK

## Background

#BeeWell is a programme that aims to make the wellbeing of young people everybody's business. A key component of this is an annual survey of the domains and drivers of wellbeing among young people across Greater Manchester (GM; survey available [here](#)). The data generated by #BeeWell will inform work in different parts of the GM system (e.g. integrated health, care, education and voluntary, community and social enterprise infrastructure). We hope this will provide new and improved ways to support young people, creating the best conditions for them to thrive in every community, regardless of their background. In 2023/24, the #BeeWell survey will be delivered for the first time in Hampshire, Isle of Wight, Portsmouth and Southampton, generating further data and research into the wellbeing of young people in England.

## Leisure time and mental wellbeing

The ways in which we spend our free time (i.e., leisure) can benefit us in terms of our mental wellbeing. This includes participation in arts, culture, and entertainment (PACE) activities. Previous research indicates that PACE activities promote wellbeing, however studies tend to use small samples that don't reflect the population; focus on adults; use cross-sectional designs, which do not allow us to establish temporal relationships (i.e., PACE activities preceding mental wellbeing); or, use single activities as an indication of how people spend their free time (meaning that it is unclear if/how participation in some activities coincides with participation in other activities). Claims have been made that the range of activities in which we participate is more important for wellbeing than the amount of time spent doing specific activities, and so it is important to understand how activities group together when looking at the benefits for wellbeing. It is also important to understand whether participation varies among different groups of young people.

## What did we do?

This study uses data on 18, 224 young people from 138 secondary schools in the #BeeWell sample, using data from the first (T1) and second (T2) annual data points. This is smaller than the full #BeeWell sample, as our longitudinal analysis was restricted to those who were in Year 8 at T1; those who had responded to at least one of the 11 PACE items; and, attended a school with at least 5 survey responses. The sociodemographic characteristics of our analytical sample can be found in Table 1, and the measures used in the study can be found in Table 2.

We used a statistical method called Latent Class Analysis (LCA) to identify patterns of PACE among young people in Greater Manchester, based on the amount of time they reported spending doing each activity (Table 2), and whether any patterns of similar activity levels emerged between participants. LCA estimates the probability of each adolescent in the dataset belonging to each group that emerges, by grouping individuals who share similar response patterns. This allows us to make inferences about how different groups of young people spend their free time, based on the probability of endorsing a particular PACE item in a given group.

LCA also allows us to identify socio-demographic characteristics of the young people in any one group compared to another – for example, their gender and sexual identity, ethnicity, socioeconomic disadvantage, social media use, and concurrent wellbeing (Table 2). We are also able to compare later wellbeing scores in each of the identified groups.

In sum, using LCA we 1) identified patterns of PACE among young people in Greater Manchester; 2) established associations between socio-demographic characteristics and PACE group membership; and, 3) investigated whether PACE group membership predicts later (T2) mental wellbeing.

As with any project of this kind, some of our data were missing. Handling missing data is important because it can lead to biased analyses. Accordingly, we used a technique called Full Information Maximum Likelihood (FIML), which enables us to make use of the full sample in our analysis, rather than just those with no missing data. For further detail about our analyses, please refer to the pre-print for the paper for this study, which can be found [here](#).

**Table 1: Sociodemographic characteristics of the analytical sample**

Domain	Source	Sample item(s) or description	Response format/scoring	Notes	n (%) of analytical sample / Mean (SD)
Gender and sexual orientation	Linked admin data T1	Designation as boy or girl	Male Female	A 3-category variable was derived:  1. Cisgender heterosexual boys (Boy designation and gender identity, reported being heterosexual);	
	#BeeWell survey T1	Gender identity (“Are you:”)	Girl (including trans girl) Boy (including trans boy) Non-binary I describe myself in another way Prefer not to say	2. Cisgender heterosexual girls (Girl designation and gender identity, reported being heterosexual);  3. LGBTQ+ (identified as sexual minority (e.g. gay, lesbian, bi/pansexual), gender diverse (e.g. non-binary, and/or gender identity not congruent with boy/girl designation), or who indicated that they <i>describe themselves in another way</i> or <i>prefer not to say</i> on sexual orientation or gender identity items).	Cisgender heterosexual boys: n=6126 (33.62%)  Cisgender heterosexual girls: n=5336 (29.28%)
	#BeeWell survey T1	Sexual orientation (“What best describes you?”)	Bi/pansexual Gay/lesbian Heterosexual/straight I describe myself in another way Prefer not to say		LGBTQ+: n = 5466 (29.99%)
Ethnicity	Linked admin data T1	Ethnic group	White Asian	‘Any Other Ethnic Group’ and ‘Chinese’ categories combined due to very low N in each, which would	White: n = 11864 (65.1%) Asian: n = 3126 (17.15%)

			Black	likely result in model convergence issues if considered separately (Thornton & Humphrey, 2023)	Black: n = 887 (4.87%) Mixed: n = 1047 (5.75%) Any Other Ethnic Group (incl. Chinese): n = 579 (3.18%)
Socio-economic disadvantage	Linked admin data T1	Free school meal eligibility (FSM; currently or in last 6 years)	Yes No	Approach taken in Black et al (2023) mirrored to derive a binary measure of socio-economic disadvantage, with those residing in the most deprived IMD quintile (Q1) and FSM eligible classed as disadvantaged. This approach was taken due to the inclusivity of either measure in isolation.	Disadvantaged: n = 2021 (11.09%)
	Linked publicly available data T1	Indices of Multiple Deprivation (IMD; Quintiles), based on residential postcode	Q1 (most deprived) to Q5 (least deprived)		

**Table 2: Measures used in study**

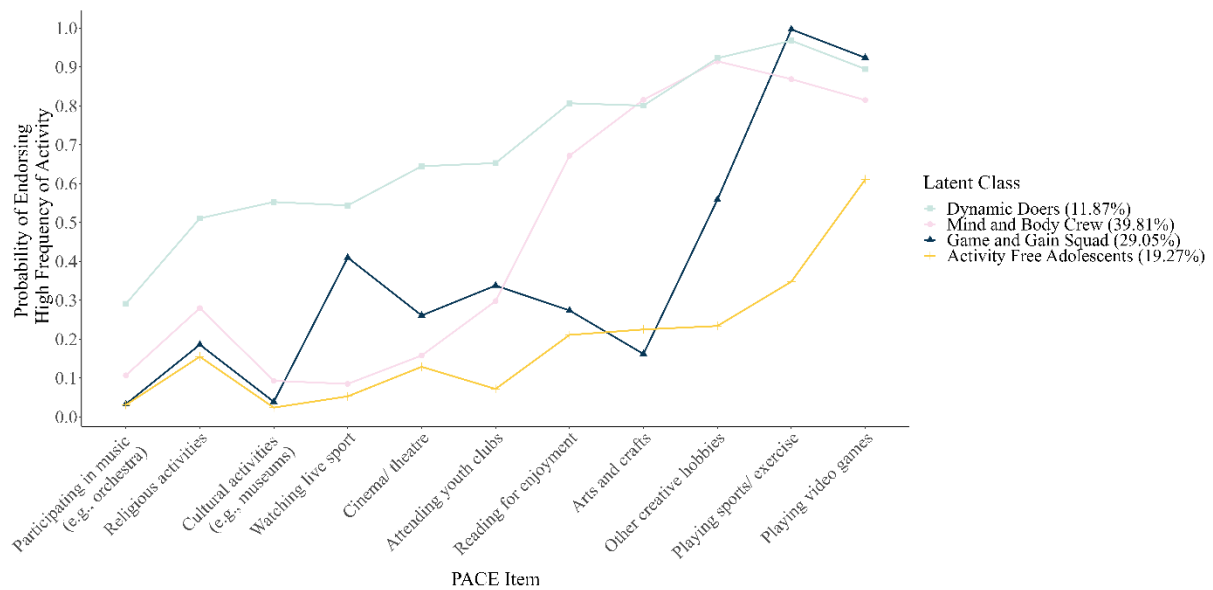
Domain	Sample item(s) or description	Source	Response format/scoring	Notes	n (%) of analytical sample
PACE	Go to the cinema or theatre				High frequency: n=4331 (24%)
	Go to watch live sport				High frequency: n=4068 (22%)
	Sing in a choir or play in a band or orchestra				High frequency: n=1646 (9%)
	Read for enjoyment (not for school)				High frequency: n=8672 (48%)
	Go to youth clubs, scouts, girl guides or other organised activities				High frequency: n=5523 (30%)
	Go to museums or galleries, visit a historic place or stately home	#BeeWell survey T1 (items adapted from Millennium Cohort Study; Connelly & Platt, 2014)	Most days At least once a week	Dichotomised into high (most days; at least once a week; or, at least once a month) vs low (Several times a year; once a year or less; never/almost never) frequency	High frequency: n=2123 (12%)
	Attend a religious service		At least once a month		High frequency: n=4557 (25%)
	Draw, paint or make things, not at school		Several times a year Once a year or less		High frequency: n=9091 (50%)
	Play games on a computer or games console, such as Wii, Xbox, or PlayStation		Never/Almost never		High frequency: n=14683 (81%)
	Play sports, do exercise, or other physical activities, not in school				High frequency: n=14645 (80%)
Spend time on creative hobbies, not mentioned above?				High frequency: n=12154 (67%)	

Domain	Sample item(s) or description	Source	Response format/scoring	Notes	n (%) of analytical sample
Social media use	On a normal weekday during term time, how much time do you spend on social media? For example, sites or apps like TikTok, Instagram, and Snapchat.	#BeeWell survey T1 (items adapted from Millennium Cohort Study; Connelly & Platt, 2014)	Hourly increments up to 7 hours+ 1 = None 2 = Less than 1 hour 3 = 1 hour to less than 2 hours 4 = 2 hours to less than 3 hours 5 = 3 hours to less than 4 hours 6 = 4 hours to less than 5 hours 7 = 5 hours to less than 6 hours 8 = 6 hours to less than 7 hours 9 = 7 hours or more	Recoded as a quasi-continuous variable to aid interpretation of results (higher value denotes more time spent on social media): 0 = None 1 = Less than 1 hour 2 = 1 hour to less than 2 hours 3 = 2 hours to less than 3 hours 4 = 3 hours to less than 4 hours 5 = 4 hours to less than 5 hours 6 = 5 hours to less than 6 hours 7 = 6 hours to less than 7 hours 8 = 7 hours or more	0: n=1178 (6.5%) 1: n = 1499 (8.2%) 2: n = 2325 (12.8%) 3: n = 2633 (14.4%) 4: n = 2337 (12.8%) 5: n = 2085 (11.4%) 6: n = 1671 (9.2%) 7: n = 1099 (6%) 8: n = 3260 (17.9%)
Mental wellbeing	e.g., I've been feeling useful	#BeeWell survey T1 and T2 (Short Warwick Edinburgh Mental Wellbeing Scale, SWEMWBS; Clarke et al., 2011)	None of the time Rarely Some of the time Often All of the time	Transformed SWEMWBS scores used (consistent with guidance from the measure developer; Stewart-Brown et al., 2009).	T1: 21.76 (±4.93) T2: 21.78 (±5.04)

## What did we find?

Patterns of PACE fell into four distinct groups, which we called 1) the Dynamic Doers, who had high probabilities of taking part in a wide range of activities; 2) the Mind and Body Crew, who were likely to spend their time reading for enjoyment, participating in arts and crafts or other creative hobbies, doing exercise or other physical activities, and playing video games; 3) the Game and Gain Squad, who were highly likely to play sports, do exercise or other physical activities, and play video games; and 4) the Activity Free Adolescents, who were unlikely to take part in any PACE activities. 11.87% of our sample were Dynamic Doers, 39.81% were in the Mind and Body Crew, 29.05% were in the Game and Gain Squad, and 19.27% were in the Activity Free Adolescents. These groups are represented in Figure 1.

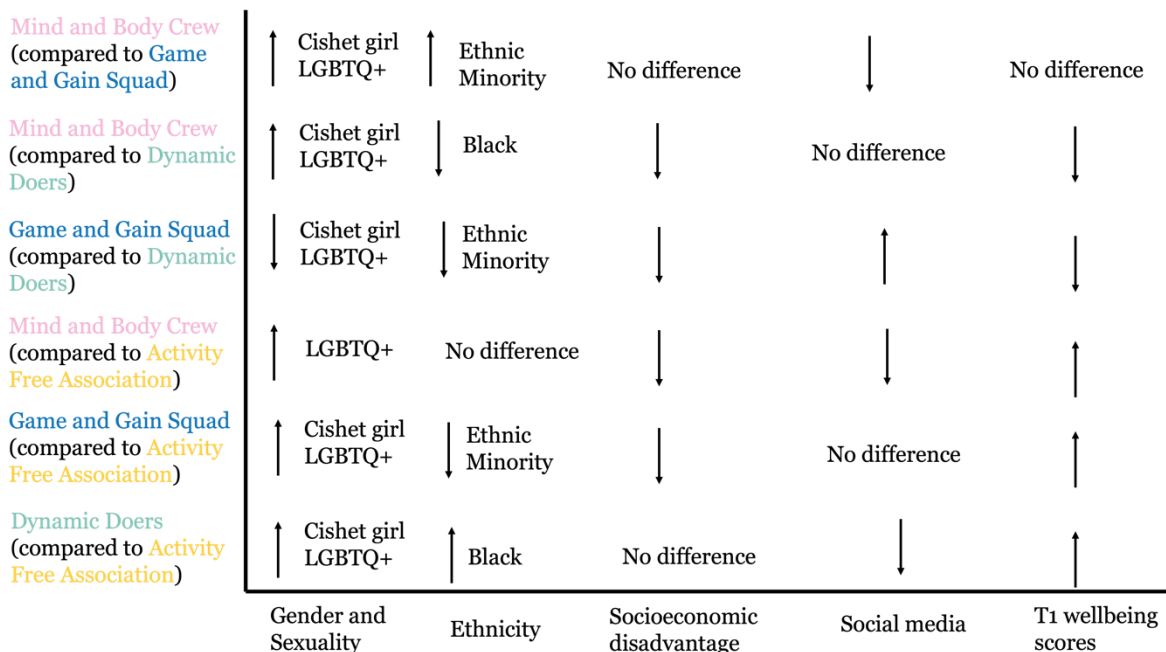
**Figure 1: The characteristics of each of the four identified groups, based on the probability of taking part in each PACE activity**



## What predicts PACE group membership?

When looking at the socio-demographic make-up of each group, the odds of a certain characteristic being present in one group is compared to a ‘reference group’, using odds ratios. So, for example, compared to the Activity Free Adolescents, members of the Game and Gain Squad are significantly more likely to be cishet girls or LGBTQ+; less likely to belong to an ethnic minority group; less likely to be socio-economically disadvantaged; and, have higher initial (T1) wellbeing scores.

**Figure 2: Socio-demographic predictors of PACE group membership**



*Figure notes: No difference = Odds ratio was not statistically significant; ↓ = lower odds compared to reference group; ↑ = higher odds compared to reference group.*

## **Do patterns of PACE predict later (T2) mental wellbeing?**

The Dynamic Doers had the highest mental wellbeing scores at T2 (mean = 22.46), and the Activity Free Adolescents had the lowest mental wellbeing scores at T2 (mean = 21.34).

We compared the average T2 wellbeing scores in each group, after accounting for socio-demographic covariates (which can also affect mental wellbeing), and their initial (T1) wellbeing scores. These comparisons can be seen in Figure 3. In brief:

- T2 wellbeing scores were significantly higher among young people in the Dynamic Doers compared to those in the Mind and Body Crew and in the Activity Free Adolescents.
- T2 wellbeing scores were significantly higher among young people in the Game and Gain Squad compared to those in the Mind and Body Crew and in the Activity Free Adolescents.
- There was no difference in T2 wellbeing between young people in the Dynamic Doers and the Game and Gain Squad
- There was no difference in T2 wellbeing between young people in the Mind and Body Crew and Activity Free Adolescents



**Figure 3: Differences in T2 mental wellbeing scores between PACE groups**

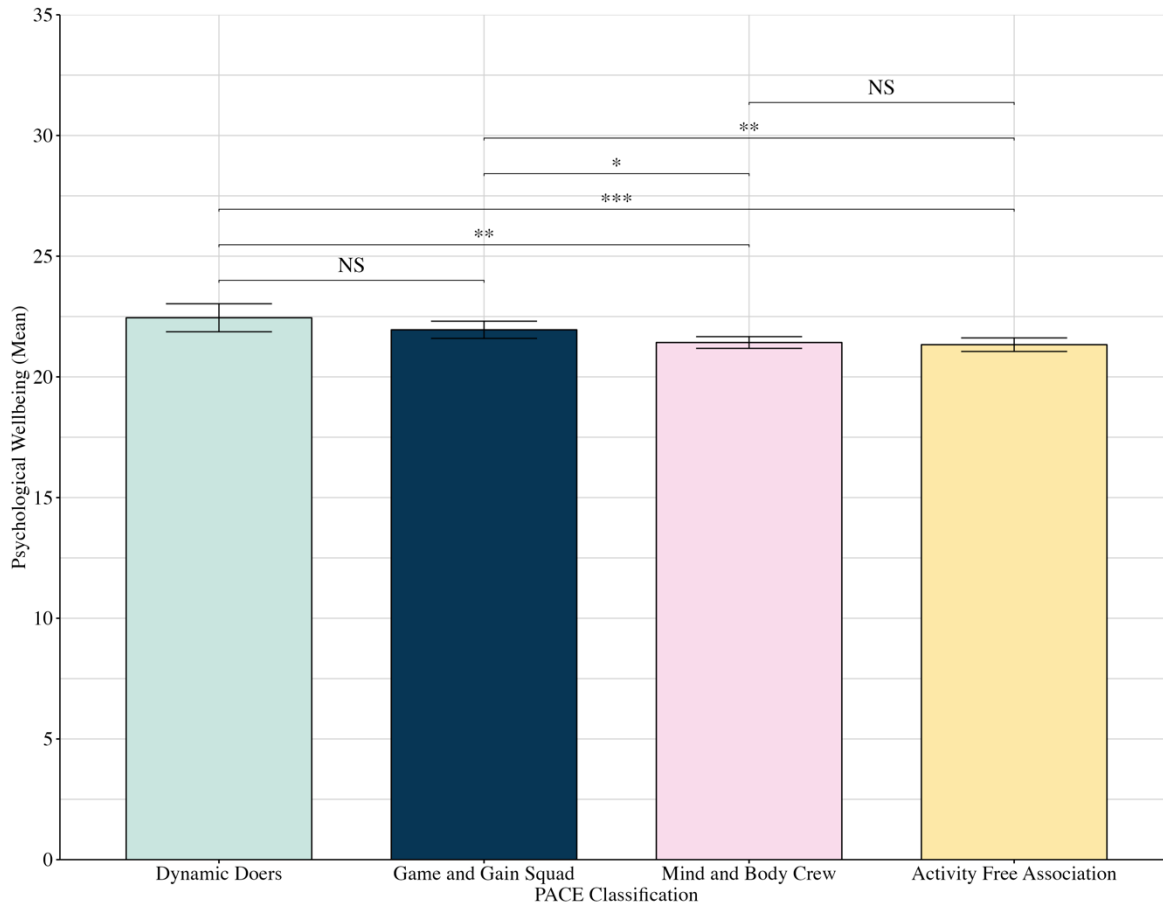


Figure notes: Error bars indicate 95% confidence intervals, which provide a range within which the true population value is likely to fall. Bars annotated with asterisks indicate a statistically significant difference in wellbeing scores between the two groups they are linking. NS = not statistically significant (i.e., no difference in T2 wellbeing); \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$  (different levels of statistical significance, with \*\*\* indicating highest significance level).

## Conclusion

In summary:

- Four distinct patterns of PACE were evident in our sample, suggesting engagement varies across different groups of young people. There is a group of young people who spend their time engaged in a wide range of activities (Dynamic Doers); a group of young people who spend their time engaged in reading, arts and crafts, video games, and sports/exercise (the Mind and Body Crew); a group of young people who almost exclusively spend their time playing video games or engaging in exercise or other sports (the Game and Gain Squad); and finally, a group of young people who spend very little time engaging in any PACE activities (the Activity Free Adolescents).
- Socio-demographic characteristics predicted PACE group membership (e.g., groups which involved more activities were less likely to use social media; those in the Activity Free Adolescents were more likely to experience socioeconomic deprivation).

- Group membership predicted later mental wellbeing. In particular, engagement in a wide range of activities (the Dynamic Doers) was beneficial for wellbeing, highlighting the importance of undertaking a range of PACE activities for wellbeing, rather than focusing only on time spent engaging in specific activities.
- The relationship between PACE and wellbeing may also be reciprocal, with those with higher initial wellbeing scores being more likely to engage in PACE activities (i.e., T1 wellbeing scores (concurrent with when PACE data was collected) were higher among Dynamic Doers, Game and Gain Squad, and Mind and Body Crew, compared to those in the Activity Free Adolescents).

We can have confidence in our findings due to our very large sample, which closely mirrors the 11-16 population of young people in Greater Manchester and nationally (although there were some differences in ethnic composition compared to the national picture).

The key implications of these findings are as follows:

- Around 1 in 5 young people are disengaged from PACE activities (the Activity Free Adolescents), and we discovered socio-demographic inequalities in PACE. It is therefore important to invest in prioritising and promoting engagement in PACE, through provision in and out of school, with a focus on making activities both accessible and appealing to all young people.
- We found distinct benefits of playing video games for wellbeing. This was a distinguishing factor between the Game and Gain Squad and the Mind and Body Crew, and the former had significantly higher T2 wellbeing scores than the latter. Addressing the somewhat negative public perception of this type of activity should therefore be a priority, since time spent playing videogames may actually be time well spent.

## References

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