

Employee autonomy



About this report

This report forms part of Wellcome's 2020 Workplace Mental Health Commission. The aim of the commission was to understand the existing evidence behind a sample of approaches for supporting anxiety and depression in the workplace, with a focus on younger workers.

You can read a summary of all the findings from Wellcome's 2020 Workplace Mental Health Commission on our website: <https://wellcome.org/reports/understanding-what-works-workplace-mental-health>

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Workplace Mental Health Report

Job Autonomy and Anxiety & Depression in Young People

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Executive Summary

Over half of all mental health problems are already established by age 14, and three quarters of problems start before the age of 24. From our own work with organisations and existing research evidence we already knew that job autonomy could have an impact on workers' mental health, including anxiety and depression. With these things in mind we wanted to explore the role that job autonomy plays in anxiety and depression amongst younger (under 25) employees and to assess whether interventions to improve autonomy for U25s would be worthwhile. In essence job autonomy refers to the extent to which individuals experience freedom and agency in fulfilling their job role and there is a range of simple ways of improving it, including: enabling people to influence the order in which tasks are carried out; enabling them to influence their own working schedules and processes; providing opportunities to influence deadlines and completion targets for tasks and empowering workers to make decisions and providing the resources to support this.

What we did

Our primary research question was: What is the impact of job autonomy at work on anxiety and depression (AAD) for young employees and does this differ from the impact for other age groups? Understanding the answer to this question is a prerequisite to assessing the potential benefits of interventions to improve job autonomy for U25s.

We reviewed four sources of evidence. First, published research articles accessed by an online search of relevant databases. Abstracts for 1,985 articles were extracted and systematically reviewed to identify relevant studies. In total, this resulted in the inclusion of 277 articles. Secondly, unpublished (grey) literature. Thirdly, information provided by practitioners (e.g. HR professionals) as to any internal projects or data focused on autonomy. Finally, analysis of several existing datasets held by Robertson Cooper, containing information on job autonomy and mental health. Data from over 150,000 employees were analysed, up to 7% of which was from U25s.

What we found

What we found confirmed the established finding, from wider age groups, that low autonomy is associated with AAD, specifically in U25s. The evidence that we found relating specifically to U25s was limited but produced similar results to that of O25s, suggesting that improvements in job autonomy are likely to have a beneficial impact on AAD for this age group. Whilst autonomy is comparatively less troubling for U25s compared to O25s, for both groups it is more troubling when compared to other, known workplace stressors, such as workload or job security. In particular, the results from our data analysis showed that changes in autonomy over time were linked to changes in symptoms of AAD. The role of managers and job crafting are discussed as promising areas for interventions to increase autonomy and positively impact AAD outcomes for U25s.

Recommendations for business leaders:

- Take a systematic measurement-based approach to mental health.
- Train managers and employees to leverage the beneficial role that appropriate autonomy can play
- Take an individualised approach with young employees

Recommendations for policy makers:

- Start with the public sector.
- Ensure jobs created are healthy jobs
- Ensure action is proactive and tackles causes, rather than symptoms.

Introduction and background

Mental health problems typically start when people are young and the existing evidence (Fink *et al.*, 2015; Bor *et al.*, 2014) indicates that one in five young people experience some form of mental health problem. Robertson Cooper was founded by Professor Ivan Robertson and Professor Sir Cary Cooper and its mission is to help organisations improve the mental health and wellbeing of their employees. We recognised many years ago how important job autonomy is for people's mental health. Research from other sources is also very clear on the important impact that autonomy in the workplace exerts on the mental health of employees (e.g. Egan *et al.*, 2007; Harvey *et al.*, 2017; Åhlin *et al.*, 2018). With this evidence in mind we seek to understand the role that job autonomy plays for younger (U25) employees and the extent to which interventions to improve autonomy might have a positive effect on their mental health. The amount of autonomy experienced by an employee is, to some degree, dependent on his or her specific job role but, within the fixed constraints of the role, there is often flexibility to give employees more freedom. If there are positive effects on mental health, greater autonomy could provide benefits for both employees (reduced levels of anxiety and depression) and employers (better performance, tenure and attendance).

Existing research evidence has already established that specific factors play an important role in employees' mental health (e.g. Häusser *et al.*, 2010). The three key workplace factors are: demands; control (autonomy) and support. These factors combine to determine how psychologically healthy a job is. The best jobs involve a combination of high demands (to enable the job holder to experience the benefit of meeting difficult challenges) together with high levels of autonomy and appropriate resources & support (Bakker *et al.*, 2010).

For the purposes of this research the terms control and **autonomy** are interchangeable and refer to the extent to which individuals experience freedom and agency in fulfilling their job role. For simplicity, the term autonomy is used throughout the remainder of this report. The essence of job autonomy is to allow people freedom to shape their job within a culture of trust and no blame. All three of these ingredients, i.e. freedom, trust and no blame are important and represent the key conditions for autonomy to be a positive experience. Obviously, in most roles there are limits to the autonomy that workers can have but there are several levers for leaders and managers to draw on when looking for ways to increase autonomy. The table below is not an exhaustive list of the levers but illustrates several options.

Table 1 Autonomy levers

Autonomy lever	
Consultation	Asking employees for their views, in particular on their job and how it should be carried out
Decision-making	Empowering workers to make decisions and providing the resources to support this.
Ordering of tasks, work schedules and processes	Enabling people to influence the order in which tasks are carried out and to influence their own working schedules and processes
Extra-role tasks	Giving people the freedom to perform tasks not specifically part of their job role, if they believe it will be helpful to themselves or colleagues.
Deadlines	Providing workers with the opportunity to influence deadlines and completion targets for tasks
Skill utilisation	Understanding the skills that people offer and providing opportunities to utilise them where feasible and productive

Autonomy in practice

Google Moderator is a management tool that draws on several of the key levers. It involves **consultation** by allowing people across the company to get involved in meetings by asking questions, voting up questions and generally being involved in new ideas. Google also allows engineers to spend 20% of their working week on projects that interest them, which may include **extra-role tasks** and enables them to **utilise their skills**.

The Upside-Down Management principle that John Timpson introduced provides a good example of the implementation of several principles. After training and once they are staffing their own unit employees can make their own **decisions** in spending up to £500 to solve customer concerns, without manager authorisation.

It's important to recognise that providing autonomy in a job does not mean there are no boundaries or accountability and people can do what they like; it's also important to remember that people are different and what feels like autonomy to one employee may feel like being abandoned or being given too much responsibility to another. These final points imply that clarity about the boundaries for a role and tailoring the freedom and boundaries for different individuals are also important considerations.

The systematic use of self-report surveys (e.g. Johnson, 2009) is a simple and informative method of assessing levels of autonomy experienced by employees.

Mental health

Anxiety refers to a feeling of unease, such as worry or fear, that can be mild – severe.

Depression encompasses low mood, sadness, feelings of hopelessness, low self-esteem, which may also be mild to severe.

Although we are focused on anxiety and depression as the mental health conditions of interest, it is important to recognise that preventing their occurrence in the first place is a more effective intervention than treating the conditions once they are established. Individuals may experience a range of mental health symptoms before a clinical diagnosis of anxiety or depression is appropriate and addressing work-related issues that trigger mental health symptoms has been shown to reduce the likelihood of subsequent periods of anxiety or depression (Egan et al., 2007). Our interest, therefore, covers workplace factors that impact broad, early stage mental health symptoms as well as the impact of workplace factors specifically on anxiety and depression.

Evaluating the potential for autonomy to improve anxiety and depression in young employees (U25s) requires clarity about a number of underpinning issues, the first of which is the extent to which job autonomy actually does influence the mental health of young people; this and other relevant issues are listed below, in the form of specific research questions.

The primary research question is:

1. What is the impact of autonomy at work on anxiety and depression for young employees and does this differ from the impact for other age groups?

Previous research has already established links between job autonomy and mental health outcomes, including anxiety and depression but the strength of the relationship (i.e. how seriously autonomy impacts anxiety and depression) for young employees could be different. For example, given their youth and relative lack of experience, younger employees may have expectations about low levels of autonomy and may be much less troubled by low autonomy than by other stressors, such as excessive work demands.

A related issue is the possibility that, for younger employees, high levels of autonomy may be undesirable and the additional decision-making required may actually have a negative impact on mental health. Individual differences may also be important here, such that some younger employees may thrive with high or low autonomy, but others may react differently.

Additional research questions, important in evaluating the potential for job autonomy to improve anxiety and depression in U25s are given below and the evidence relating to these is provided in the discussion section of this report:

- 2. Do young employees report different levels of autonomy compared to other age groups?**
- 3. For young employees, how does the level of autonomy compare with the level of other known stressors that influence anxiety and depression at work?**
- 4. Are there contextual influences on autonomy in the workplace?**
- 5. What factors influence or moderate the impact of autonomy on anxiety and depression?**

Methodology

Evidence collection and collation. Four evidence sources were used:

1. Scientific articles from online databases
We created inclusion criteria suited to the project requirements and followed a search procedure designed to identify relevant articles.
The inclusion criteria and search terms are given in Appendix 1.
2. Grey (unpublished) literature
We contacted editors of relevant journals and leading researchers requesting information about unpublished information of relevance.
3. Information provided by practitioners in organisations
We contacted practitioners in organisations via The National Forum of Health and Wellbeing at Work and directly using Robertson Cooper's client database of 113 organisations.

The email texts for items 2 & 3 above are available from the authors on request.

4. Existing wellbeing & personality (see below) data.

Data collected by Robertson Cooper in the past 5 years across four data sets, outlined in the following section.

Data extraction and analysis

The online search produced a total of 1,985 articles for screening. Abstracts for all 1,985 articles were extracted and systematically reviewed to identify relevant studies. In total, this resulted in the inclusion of 277 articles (See Appendix 2).

The full set of 1,985 abstracts and sources are available from the authors on request.

The articles were grouped into categories related to the key questions given in the Introduction and Background.

The article categories are given in Appendix 1.

Information from the grey literature and the practitioner requests was reviewed and evaluated for relevance.

A summary of the information obtained is available from the authors on request.

Four existing Robertson Cooper datasets were analysed. A composite AAD variable was created, consisting of relevant items from existing published scales, measuring AAD symptoms (see Appendix 3). Autonomy was measured as the extent to which it was troubling, as opposed to presence / absence (see Appendix 3).

1. **Cross-sectional wellbeing survey data (n=36,200, 7% U25s)**
Data: Experiences of workplace pressures (including autonomy) and AAD, with limited demographic information
Analysis focus: Relative levels of autonomy and AAD between U25s / O25s, importance of autonomy compared to other stressors in determining AAD
2. **Longitudinal data (n=3,228, 3% U25s)**

Data: as above, with two datapoints per individual

Analysis focus: How changes in autonomy relate to changes in AAD

3. Personality data (n=156,594, 12% U25s)

Data: Personality measured using the five-factor model (Costa & McCrae, 1992), with limited demographic information. The five-factor model is the most widely accepted structural model for human personality and covers five major domains (Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism) further divided into 30 facets.

Analysis focus: Differences in personality traits between U25s / O25s

4. Combined wellbeing survey & personality data (n=1,814, 3% U25s)

Data: experiences of workplace pressures (including autonomy), AAD and personality, with limited demographic information

Analysis focus: is autonomy experienced by U25s related to underlying individual differences (personality); does personality moderate the relationship between autonomy and AAD

Synthesis & Reporting

We reviewed the results of the evidence in two ways. First, the limited amount of evidence giving specific data on the relationship between autonomy and mental health outcomes (including anxiety and depression) for U25s was classified using the Nesta Standards of Evidence (Puttick & Ludlow, 2012). Second, we used the remainder of the evidence obtained to provide as much insight as possible for the key questions raised in the Introduction and Background. The generalisability of our findings is limited by the available information and by and large is restricted to English language literature although our results do include information derived from a range of international sources, including non-western organisations.

Results

The online search, request to editors, researchers and practitioners produced five sources that provided direct evidence of relationships between autonomy and mental health for young employees. The analysis of survey data provided by Robertson Cooper (see Methodology) provided a sixth source of evidence.

A summary of the findings from these sources is given below in Table 2.

Table 2: Job autonomy and mental health outcomes for young people

Source	Participants	Autonomy measure used	Mental health measure used	Evidence summary

(Svane-Petersen et al., 2020)	All Danes aged 15–30 who entered the Danish labour market during 1995–2009 and were free from depressive disorder at entry (N=955,573).	Five self-reported items	Depressive disorder was assessed using data from The Psychiatric Central Research Register and The National Patient Register	In a longitudinal design, lower levels of past year job autonomy were associated with a higher risk of depressive disorder after adjustment for covariates such as education and income. Hazard ratio = 1.62, indicating a 62% increase in the rate of depression associated with low autonomy, for the sample over this time period.
(Weigl et al., 2012)	Junior doctors in Germany with full-time contract, mean age, 30.5 years, N=415.	Seven item self-report job autonomy scale	German version of the Spielberger State-Trait Depression Scales. A 10 item scale developed for non-clinical populations.	In a longitudinal design, the study assessed demands, support and autonomy but after controlling for initial depressive symptoms, demographic variables, and working time, only job autonomy reduced the risk of developing elevated levels of depressive symptoms, odds ratio= 0.34.
(Taris, 1999)	Dutch employees (n=699) aged 18-26.	A broad self-report job resources scale covering 13 aspects, including, autonomy, opportunity to utilise skills, attention paid to suggestions	Depression Adjective Checklist and the Dutch version of the General Health Questionnaire.	No direct evidence of the impact of autonomy but results indicate a reciprocal relationship – poor job resources have a negative impact on mental health, which, in turn, decreases job resources.
(Arola et al., 2003)	Fulltime employees in a food production factory, n=114 divided into two age groups: <40 years (n = 54,	Nine item Finnish self-report Job Control Index	Not measured	Number of absence spells was higher among younger workers. Low job autonomy was associated with an increased number of all sickness absence spells.

	29.8 years) and ≥40 years.			
(De Jonge et al., 2000)	Dutch employees (n=11,636 from eight different employment sectors age 16-68 years, mean age=35.9.	Ten item Maastricht Autonomy Questionnaire	Emotional exhaustion, four items from Dutch version of the Maslach Burnout Inventory and a six item psychosomatic health scale.	The risk of emotional exhaustion (a mental health condition associated with burnout but not necessarily anxiety or depression) for workers who have both high demands and low control was about eleven times as high as that for workers with low demands and high control (Odds Ratio=10:94). The authors indicate that the results were similar for young and old people.
Robertson Cooper data analysis	See Methodology section	<p>Cross-sectional data</p> <ul style="list-style-type: none"> • Of the six stressor areas measured, autonomy is the biggest source of pressure for both U25s and O25s • Autonomy is less troubling for U25s compared to O25s (although the effect size is small) • Autonomy has medium-strong correlations with other workplace stressors (e.g. workload) for both U25s and O25s • Autonomy is more troubling for women than men, and also more troubling in the public sector than private sector, for both U25s and O25s • AAD symptoms are less prevalent amongst U25s compared to O25s • Autonomy has the same relationship with AAD for U25s & O25s – explaining 25% of variance <p>Longitudinal data</p> <ul style="list-style-type: none"> • Medium strength correlation between changes in autonomy and changes in AAD for U25s and O25s – as autonomy levels become more troubling, AAD symptoms increase <p>Personality data</p> <ul style="list-style-type: none"> • U25s report higher levels of Neuroticism (emotional instability), Extraversion & Openness (intellectual curiosity, preference for novelty and new experiences); non- 		

		<p>significant effects across Conscientiousness & Agreeableness (sympathetic to others, trusting, cooperative)</p> <p>Wellbeing survey & personality data</p> <ul style="list-style-type: none"> • Personality has a stronger relationship with autonomy for U25s vs. O25s – explaining 19% and 7% of variance respectively • For U25s only, extraversion moderates the effect of autonomy on AAD – higher extraversion acts as a protective factor, mitigating the effect of poor autonomy on AAD <p><i>Associated data and results tables are available on request from the authors.</i></p>
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The results above confirm the established finding that low job autonomy is associated with mental health problems. The results also suggest that this finding holds for young people. An association between job autonomy and mental health outcomes does not however mean that autonomy plays a causal role in mental health. As Table 2 reveals, the evidence for the causal role of job autonomy on the specific mental health conditions of depression and anxiety in U25s is not extensive. None of the studies above use randomised control trials although some benefit from longitudinal designs, which enable some inferences about causality and the longitudinal data analysis showed that changes in autonomy were related to changes in AAD, for both U25s and O25s.

On balance the available evidence that is specific to anxiety and depression in U25s is severely limited and lies somewhere between the NESTA levels 2-3. This finding must however be seen in the context of a substantial body of research, involving mixed age samples which provides extensive support for the impact of job autonomy on mental health (see Discussion). Given this wider body of evidence it seems highly likely that further research focused specifically on U25s would reveal similar results but this research is needed.

Discussion

The Background and Introduction section identified five questions that are important in evaluating the potential for job autonomy to improve levels of anxiety and depression in U25s.

The primary question concerns the effect of job autonomy on anxiety and depression in U25s and a summary of the evidence for this question is given above, in the Results section of this report. Although there are some isolated cases where high decision autonomy is associated with psychological distress in specific professions (e.g. lawyers, Bergin and Jimmieson, 2013) the vast majority of accumulated research results across age groups show that job autonomy is an important positive influence on anxiety and depression (Åhlin et al., 2018; Egan et al., 2007; Harvey et al., 2017). The evidence specific to U25s is limited but produces similar results, suggesting that improvements in job autonomy are likely to have a beneficial impact on levels of anxiety and depression for people in this age group. Analysis

of existing Robertson Cooper data supports this, whereby changes in the extent to which autonomy is a stressor between two timepoints are related to changes in AAD symptoms. It may be that job autonomy will be a more effective intervention for depression than anxiety as there are some studies showing that low job autonomy is more likely to result in depressive illness, rather than anxiety-related conditions (e.g. Kyaw-Myint *et al.*, 2017) but this needs further validation.

In addition to evidence relevant to the primary question we have also collected evidence (see *Appendix 2*) that relates to the other four questions and this section of the report draws on evidence from all sources to discuss the role of job autonomy in anxiety and depression for U25s.

Do young employees report different levels of autonomy compared to other age groups?

Although the impact of autonomy on anxiety and depression for U25s may be broadly similar to the effect for other age groups it could be that people in younger age groups experience different levels of autonomy. Our search did not identify any studies that provided explicit comparisons of the levels job autonomy experienced by younger people compared with those in older age groups but there is evidence that beliefs about control over work gradually increase with age (Lachman & Weaver, 1998). Job autonomy is also associated with seniority (e.g. Moreno-Pimentel *et al.*, 2019), suggesting that autonomy levels for younger employees are likely to be lower and therefore that improvements in autonomy may have a greater impact. On the other hand, even if autonomy levels are lower for young workers this may not be a problem. The expectations of younger workers may be in line with the levels of autonomy that they experience and unless they are troubled by the lower levels of autonomy the impact on mental health may not be commensurate with the lower levels of autonomy that they experience. Data analysis supports this, with employees U25 reporting autonomy levels as less **troubling** than employees O25 but (see below) low autonomy is still the most troubling stressor for U 25s.

How does the level of autonomy compare with the level of other known stressors and how does the impact of autonomy on mental health compare with the impact of other stressors?

The extent to which autonomy is more or less important than other known stressors is difficult to establish and may well be heavily dependent on the specific context and individual involved. It is clear however that, for any specific employee, job autonomy will exert its impact in combination with the other stressors and the combination of high demands and low autonomy produces the worst outcomes for anxiety and depression. Or, to express it more positively, high autonomy moderates the negative impact of high demands. The level of support available also combines with the other factors such that jobs with high demands, low autonomy and low support significantly increase the likelihood of anxiety or depression over time (e.g. Åhlin *et al.*, 2018). We did not find any published studies looking at this with specific reference to U25s but the data from Robertson Cooper provides some further insight.

First, as reported above, autonomy is less troubling for U25s compared to O25s, however compared to five other workplace stressors (e.g. workload, work relationships), autonomy is the biggest source of troubling pressure for both age groups. Secondly, autonomy has a similar relationship with AAD, when compared to other stressors, suggesting that its direct impact on AAD is similar to other stressors. Other research shows that autonomy can have a protective (moderating) effect around high demands. Taken together, these results suggest

that there is likely to be merit in improved autonomy as a way of directly reducing the impact on AAD and also mitigating the effect of other stressors (e.g. demands) on AAD.

Are there contextual influences on autonomy in the workplace?

There are several background and demographic factors that are known to be related to autonomy. Job autonomy is associated with employment sector, educational level and white collar (as opposed to blue collar) roles (Moreno-Pimentel et al., 2019). Employment status also has links with autonomy, with self-employment associated with higher levels of autonomy and workers in “dependent self-employment” (the grey zone between self-employed and employed) exhibiting the worst levels (Millán et al., 2020). Our data analysis shows that autonomy is perceived as more troubling, for both U25s and O25s, for females compared to males, and in the public sector more so than private sector. This suggests that specific groups may benefit from interventions to increase autonomy more than others.

What factors influence the impact of autonomy on anxiety and depression?

Regardless of employment context or status, management behaviour is an important factor in determining workers’ experience of workplace stressors and subsequent mental health problems (Gilbreath & Benson, 2004; Montano et al., 2017). There is evidence that manager support plays a role in linking autonomy with mental health outcomes (Blanch, 2016; Park & Jang, 2017), so that when supervisor support is low the negative impact of poor autonomy is increased. Better support combines with better autonomy to exert a protective effect on mental health (Åhlin et al., 2018) and good social relationships, which exert a protective impact on mental health, are linked to better levels of autonomy (Rusli et al., 2008).

There is strong evidence that several of the five-factor model personality factors (e.g. Neuroticism and extraversion) are associated with levels of psychological wellbeing (e.g. (Strickhouser et al., 2017) and individual differences also appear to play a role in both perceptions of and responses to autonomy and other job stressors (Deguchi et al., 2016). These results imply that different workers may perceive their levels of autonomy differently and be affected differently. The data from Robertson Cooper provides further information on the role of individual differences with reference to young workers. For U25s, personality accounts for more than twice as much of the variance in the extent to which autonomy is troubling (19%) than it does for O25s (7%). This suggests that younger people’s perceptions about their level of autonomy as a workplace stressor is more influenced by their underlying person factors than employees O25s, and less by their actual working situations.

What interventions might be used to improve levels of job autonomy for under 25s?

The evidence reviewed above suggests that the behaviour of managers and the level of support provided by managers and colleagues are promising areas, where targeted interventions might bring about improvements in job autonomy and consequently levels of anxiety and depression. Studies of the impact of job crafting (Wrzesniewski & Dutton, 2001) have demonstrated that this may also be a promising avenue for improving job autonomy. Fundamentally, job crafting involves employees in changing some aspects of their job such as altering the tasks involved or the relationships they have with others. Evidence shows that workers who craft their job produce improvements in autonomy (Tims et al., 2013) and various studies have shown the benefit of job crafting for mental health outcomes (e.g. (Kim & Beehr, 2018). Some workers (with a proactive personality) are more likely to participate in job crafting than others (Plomp et al., 2016) but empowering managers can stimulate job crafting even when worker proactivity is taken into account (Kim & Beehr, 2018).

The relationships between job autonomy, management and co-worker behaviour, worker individual differences, employment sector, employment status and anxiety and depression

are complex. Researchers are still seeking to unravel and understand these relationships and it is beyond the scope of this report to attempt to clarify these relationships. Despite this complexity, there is little doubt that interventions to increase managers' grasp of the importance of job autonomy, the role of support from managers and the benefits that can flow from job crafting, where it is feasible, will be good for the levels of anxiety and depression experienced by workers. As far as U25s are concerned, even though they are less troubled by poor autonomy than older workers it is still their most troubling stressor and their lower baseline level of autonomy implies that interventions to improve it may have a greater impact.

Recommendations

Our evidence highlights the potential merit of increasing autonomy to improve AAD outcomes for U25s. Many interventions which increase autonomy (e.g. job crafting) require little to no financial investment from organisations, although they do require appropriate implementation from organisation development practitioners and senior leaders. Below we have highlighted several recommendations for business leaders and policy makers.

Business leaders

- 1. Take a systematic measurement-based approach to mental health.**
Improving autonomy when it is already high is unlikely to deliver benefits. This means that a starting point for any intervention is to assess the current levels of job autonomy that employees report. Self-report surveys (e.g. Johnson, 2009) are probably the most effective and simple way to assess levels of autonomy and other stressors.
- 2. Train managers and employees to leverage the beneficial role that appropriate autonomy can play.** Demands placed on employees and associated levels of autonomy are often seen as integral to the job role and difficult to change. Research evidence on job crafting and manager behaviour suggests there might be more flexibility for managers and employees themselves to improve autonomy and, in turn, produce benefits for the individual and the organisation.
- 3. Take an individualised approach with young employees.**
Just like everyone else, U25s are not all the same. According to our analysis, U25s perception of job autonomy is more influenced by their underlying disposition (personality factors) compared to older workers. Underlying personality factors also have an impact on workers' engagement with interventions such as job crafting and on their reported levels of psychological wellbeing. These findings show that two young people working in the same setting will not necessarily have the same concerns about autonomy or respond in the same way to interventions to improve it. Individualised interventions, such as individual job crafting, based on consultation and information, will lead to better results than one size fits all solutions.

Policy makers

- 1. Start with the public sector.** Our data shows that autonomy is more troubling for public sector employees. With the public sector representing a significant proportion of jobs (around a fifth in the UK), it is important for policy makers to focus inwardly on the levels of autonomy factored in to public sector job design, before looking outwardly with policy designed to positively influence the private sector and broader economy. There may also be opportunities to learn from private sector practice.

2. **Ensure jobs created are *healthy jobs*.** Employment, and reducing unemployment, is consistently a priority for policy makers, and the Covid-19 pandemic will only strengthen this. Our results demonstrate the importance of autonomy and we encourage policy makers to ensure that, in their drive to create new jobs, healthy levels of autonomy (indicating the job quality) are as important as the quantity of jobs created.
3. **Ensure action is proactive and tackles causes, rather than symptoms.** Increasing autonomy as a way of improving AAD outcomes is one example of a proactive mental health intervention, tackling causes of AAD as opposed to treating symptoms. Such an approach often doesn't lead to immediate benefits and so requires patience in order to see benefits but in the long run is much more effective than attempting to treat mental health conditions once they are established.

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Appendix 1: Online search inclusion criteria, search procedure and summary of articles**Table A1: Inclusion criteria**

	Inclusion criteria	Exclusion criteria
Study design	Randomised controlled trial, controlled trial, quantitative evaluation, cross-sectional or longitudinal correlation study, systematic review, rapid evidence assessment	Qualitative studies, single case studies, methodological papers
Intervention	Any intervention focussed on maintaining and / or developing autonomy/control. Longitudinal or cross-sectional Investigations of autonomy/control and psychological wellbeing or mental health outcomes.	
Population	Young people 14-25 included as part or whole of sample	
Outcomes	Any mental health or psychological wellbeing indicator, anxiety or depression	
Source	Published journals or books.	

Table A2: Search terms and results

The following databases were used for the online search of published literature:
 EBM Reviews - Cochrane Central Register of Controlled Trials August 2020;
 EBM Reviews - Cochrane Database of Systematic Reviews 2005 to October 1, 2020;
 Econlit 1886 to September 24, 2020;
 Ovid MEDLINE(R) 1946 to September Week 4 2020;
 APA PsycInfo 1806 to September Week 4 2020;
 Social Policy and Practice 202007;
 APA PsycArticles Full Text.

Search terms	Number of hits
1. <i>demands control support or job autonomy or employee autonomy or job control or employee discretion or job craft* or work autonomy.mp. [mp=ti, ot, ab, sh, hw, kw, tx, ct, nm, fx, kf, ox, px, rx, ui, sy, tc, id, tm, mh, pt, an]</i>	4,331
2. <i>anxi* or depress* or mental health or wellbeing or well-being.mp. [mp=ti, ot, ab, sh, hw, kw, tx, ct, nm, fx, kf, ox, px, rx, ui, sy, tc, id, tm, mh, pt, an]</i>	2,094,252
3. <i>Terms 1 AND 2</i>	1,834
4. <i>empower*.m_titl.</i>	14,142
5. <i>Terms 3 AND 4</i>	124
6. <i>demands control support.m_titl. or job control.m_titl. or employee control.m_titl. or "job craft*".m_titl. or employee autonomy.m_titl.</i>	574
7. <i>Terms 3 OR 5 OR 6</i>	2,355
8. Deduplicate Term 7	1,985

Table A3: Summary of articles

Study category	Number of articles
1. Specific focus on younger age group (not necessarily U25s) with data on control/autonomy (CA) and mental health outcomes	5
2. Positive effect of CA specifically on anxiety or depression	52
3. Positive effect of CA on wider mental health indicators	87
4. Possible negative impact of too much CA on mental health	3
5. Factors that influence or are associated with CA in the workplace	30
6. Moderators and mediators of the effect of CA on mental health	44
7. Mechanisms by which CA affects mental health (e.g. by moderating the impact of excessive demands)	33
8. Meta-analyses and reviews – no original data	15
9. Unclassified	8

Appendix 2 *Full set of extracted article citations is available in a separate Excel file on request.*

Appendix 3: Robertson Cooper’s items which were used to create the AAD composite variable

Table A4: AAD composite variable items & scales

Item	Robertson Cooper scale	Description	Responses	AAD symptoms
1. Feeling unable to cope	Psychological health	<i>‘Within the last 3 months, have you experienced the following symptoms or changes in behaviour...’</i> <i>*Lower score = better</i>	(1) Never, (2) Rarely, (3) Sometimes, (4) Often	Anxiety
2. Constant irritability				Anxiety
3. Avoiding contact with other people				Depression
4. Lack of appetite or over eating	Physical health			Depression
5. Insomnia – sleep loss				Both
6. Muscular tension / aches and pains				Both
7. Enthusiastic	Positive psychological wellbeing	<i>‘The extent to which people are experiencing positive emotions at work...’</i> <i>*Higher score = better</i>	1) Very slightly or not at all, (2) A little, (3) Moderately, (4) Quite a bit, (5) Very much	Depression
8. Happy				Both

Table A5: Autonomy variable items

Item	Robertson Cooper scale	Description	Responses
1. I am troubled that I have little control over many aspects of my job	Control	<p><i>'To what extent do you agree with the following statements'</i></p> <p><i>*Lower score = better</i></p>	<p>(1) Strongly Disagree, (2) Disagree, (3) Slightly Disagree, (4) Slightly Agree, (5) Agree, (6) Strongly Agree</p>
2. I am troubled that I am not involved in decisions affecting my job			
3. I am troubled that my ideas or suggestions about my job are not taken into account			
4. I am troubled that I have little or no influence over my performance targets			