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Chapter 18. Predicting and guiding career success in medicine.

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Each of them - as is often the way with men who have selected careers of different kinds - though in discussion he would even justify the other's career, in his heart despised it.

Leo Tolstoy (Anna Karenina 1877)

Overview

This chapter provides information, first on which doctors can base the careers advice they give to other doctors, second which can help them reflect on and gain insight into their own careers, and third to assess the extent to which general theoretical principles can inform an understanding of medical careers. We examine various psychological theories of career success and apply the findings to medicine. They enable us

circumstances of individual patients.

Frank Parsons recognised the importance of choosing the right career in the opening words of his book 'Choosing a vocation', published in 1909:

305) *na*

also had higher job satisfaction ($\beta=0.12$). The link between human capital and success was less clear; workers with more education were no more likely to be promoted, have pay increases, or be satisfied than their less-educated colleagues, but having the opportunity for greater training whilst employed was linked to higher job satisfaction ($\beta=0.24$). A metaanalysis by Ng et al (2005) also found that workers who had greater organisational sponsorship in terms of supervisor support, career sponsorship, and training and skills development opportunities were more likely to be satisfied (mean $r=0.43$) and also had higher salaries (mean $r=0.23$). However, in contrast to Wayne et al, Ng et al also found that salary was positively correlated with the human capital variables of hours worked, work experience, educational level and political skills and knowledge (mean $r=0.27$).

Mentoring

Mentoring is a form of organisational sponsorship that has attracted much attention. It can vary in formality, and mentors can be from within or without the protégé's field. Eby et al (2008) conducted a metaanalysis of youth, academic, and workplace mentoring. Outcomes were measures of behaviours, health, relations, motivation, attitudes and extrinsic and intrinsic career outcomes. The results showed a small but statistically significant effect of mentoring on extrinsic career success ($r=0.05$) and a larger effect on job skills development i.e. increases in human capital ($r=0.11$). The largest effects of mentoring were on satisfaction ($r=0.16$) and positive attitudes ($r=0.14$), but even these were relatively small.

It can be difficult to know what aspect of mentoring improve success; for example, does the psychological su

those other factors. The results showed that people with an informal mentor were more likely to be promoted over a two year period ($\beta=1.15$) but were no more likely to have an increase in salary. Salary increase was instead predicted by human capital, i.e. training ($\beta=0.17$) and education ($\beta=0.16$). Protégés were also more likely to expect to get

is probably due to genes, which suggests it may well be variance itself that has been selected for. Intermediate levels of anxiety or neuroticism are probably optimal so that, to use a cartoon-strip analogy, all of us are descendants of those Palaeolithic ancestors who were neither so free of anxiety that they were rapidly eaten by sabre-toothed tigers, nor so obsessed with personal safety that they never left their caves for fear of being eaten and died of starvation as a result. Society does need some people who are very anxious (disasters happen and we need people who worry about the future), and it also needs people who are not anxious in high risk situations and get on with the job in hand (soldiers, surgeons, and so on).

Personality and career outcomes

Personality predicts career outcomes. A meta-analytic review across various professions showed that conscientiousness was significantly related to job proficiency (corrected $r=0.23$) in many different occupational groups (Barrick & Mount 1991) and another study by the same authors showed that the link between C and job performance was particularly high in jobs with higher levels of autonomy (Barrick & Mount 1993). A longitudinal paper from the US showed C positively predicted extrinsic career success ($r=0.50$; Judge et al 1999) and a metaanalysis by Ng et al (2005) showed C positively predicted salary (corrected correlation ($r_c=0.07$), promotion ($r_c =0.06$) and satisfaction ($r_c =0.14$)). It should be remembered, however, that most of these and other studies have mainly looked at jobs which are extrinsically rather than intrinsically motivated, and where the outcomes are clearly defined rather than open-ended and creative. Part of the reason conscientiousness predicts extrinsic career outcomes is that it also predicts the human capital factor of academic success. In particular, C positively predicts attainment at medical and dental school (Ferguson et al 2002).

autonomy in their work. By contrast, extraverted doctors were less stressed, and agreeable doctors perceived their workplace to be supportive with help available as needed, possibly because they

evaluation (Judge & Bono, 2001). It is not clear, however, that LOC is the same across all situations and therefore care should be taken in considering it to be a stable personality trait like the Big 5.

Locus of control and career development

Internal LOC (the belief that one can control one's environment) is related to psychological wellbeing (Judge et al 1998), which fits with the Self-Determination Theory idea that autonomy (the opportunity to exert control over one's actions and environment) is a basic psychological need which leads to wellbeing if satisfied. And as with autonomy, LOC has been found to correlate with both intrinsic and extrinsic career success. A metaanalysis of 222 studies showed that people with internal LOC had higher job satisfaction ($r_c=0.33$) and were more committed to their jobs ($r_c=0.24$). They were more intrinsically motivated ($r_c=0.18$) and higher self efficacy ($r_c=0.28$). They experienced their jobs more positively in terms of autonomy ($r_c=0.24$), found their jobs challenging ($r_c=0.26$), and were less likely to burn out ($r_c=-0.27$), feel overloaded, have work-family conflict, or be stressed. They also had more extrinsic success. They were more likely to be highly rated by others ($r_c=0.17$) and themselves ($r_c=0.12$) and had higher salaries ($r_c=0.16$) (Ng et al 2006). Another metaanalysis of the predictors of extrinsic and intrinsic career satisfaction by the same group found that locus of control was one of the variables that correlated most closely with career satisfaction ($r_c=0.47$) (Ng et al 2005).

Socio-demographic variables

As well as the psychological factors of motivation, self efficacy, and personality, and the sociological variables of organisational sponsorship and human capital, two key influences on career outcomes are the demographic variables of sex and ethnicity. These are discussed in relation to medical careers.

Sex and career outcomes

Overall, fewer women than men are registered to practice medicine in the UK; however, the proportion varies between specialities, general practice and paediatrics having the highest proportion of women and surgery having the lowest. The male to female ratio in the UK mirrors that in many countries around the world including the US, Norway, Russia, Sweden, Finland, Australia, and Canada (Elton 2009; /-5(r)-6(ee)-5(r)-6()-4(o)-10(u)-10(tco)-1/1c510.57 481.58 T/i2 7)

It is clear that further steps need to be taken to explore and ensure sex and ethnic equality in the medical profession.

Choice and career success

Many of the antecedents of career success discussed above - sex, ethnicity, socioeconomic factors influencing education and personality, for example - are originally determined by chance or, to put it differently, by genetics. However, most people also have choices in their careers (although as we have seen, people differ as to how much choice they perceive they have). We have discussed the self determination theory view of choice, which considers autonomy to be fundamental to wellbeing and intrinsic success, but there are plenty of other theories that examine the career choices people make. One of us has written elsewhere about theories of career choice applied to medicine (McManus & Goldacre 2009), in particular Holland's typology

extrinsic and intrinsic job success, but do those factors affect one another and can we combine them to more powerfully predict career success? In this section we provide a summary of a longitudinal study by Pachulicz et al (2008), which examined the predictors of extrinsic and intrinsic career success in a group of 1,269 Emergency Physicians in the United States. It provides a good overview of the various types of factor that predict the different types of outcome that make a good medical career.

Pachulicz et al administered 38-page questionnaires at three time points, measuring human capital, organisational sponsorship, socio-demographics and individual differences. Extrinsic career success was measured as the number of academic leads, the number of emergency medicine (EM) leads, and salary change from time 1 to time 3. Intrinsic career success was measured as career satisfaction and meeting of expectations. There were also three outcome measures of staff turnover: retirement, thinking of leaving EM, and thinking of leaving medicine. In addition to gaining longitudinal information about participants over three time points, new participants were added at each time point to the total sample to maintain sample sizes. Over 80% of the respondents

run a few sessions on specialty choice, and once qualified, doctors can refer to online resources or an educational supervisor to help them choose specialities. Doctors in difficulty can be referred to a careers counselling service via their postgraduate Deanery. But, in general, medics rarely come into contact with trained careers counsellors or partake in official career interventions.

Career intervention and choice

Could career interventions help doctors make more successful career choices? There is evidence from outside medicine that career interventions can be effective, at least when the outcome variables are related to certainty and/or satisfaction with choice. Less clear is how career interventions lead to extrinsic or intrinsic career success. Brown et al (2003) and Richard (2005) have reviewed the evidence surrounding the 'active ingredients' of career interventions and put forward suggestions for effective interventions. Brown et al (2003) combined their review with evidence from the broader psychological literature to formulate 15 hypotheses around which future careers interventions could be built. These fall into four main categories. First, successful interventions should include written goal setting and planning. Second, this planning should be conducted in conjunction with individualised feedback and advice from counsellors based, for example, on a participant's completion of a computer-guided intervention, and taking account of special or unusual circumstances. Third, careers interventions should encourage participants to use resources that provide information about occupations. Fourth, interventions should include some career related disclosures by seniors about difficulties they have overcome thus providing modelling opportunities.

Richard (2005) takes a broader view of career interventions encompassing their content and process as well as the infrastructure required to deliver them in practice. In terms of content, Richard suggests that interventions should enable participants to synthesise self-knowledge about their values, interests, personality and skills with knowledge about organisations, occupations and educational requirements. Interventions should equip participants with the ability to plan and make decisions. In terms of process, Richard reiterates Brown et al's suggestions in relation to written goal setting and so on. In addition, Richard advocates the use of a variety of delivery modes to reach people from disparate groups: the collaboration, articulation and communication of goals and plans to family and friends; the integration of interventions in existing educational programmes; and stringent intervention evaluations. In terms of infrastructure, Richard suggests effective interventions require qualified and committed leadership and staff as well as institutional support in the form of adequate facilities, materials, and resources. Peer advisory services or alumni shadowing services are recommended to increase participant acceptance, collaboration, and communication of goals and plans. Finally, Richard takes a broader view, extolling the virtues of a

opportunities.

Other individual variables – personality, sex and ethnicity - are also predictive of success. Individuals high in neuroticism and low in conscientiousness, as well as females and ethnic minorities are less likely to achieve at many types of extrinsic and intrinsic career success. So what can be done about this? In terms of personality, self knowledge is the key to adapting positively to a situation. Knowing a person's preferences, strengths and weakness can help them make choices based on their values, motivations, and knowledge of how they are likely to react and feel in different situations. There is also some evidence a match between interests and job characteristics is likely to lead to employee satisfaction. In the case of sex and ethnicity, the responsibility is also with employers to acknowledge and better understand group differences and make appropriate changes to ensure equality and fairness.

To sum up, then, the key requirements for making and guiding successful career choices are, first knowledge of oneself and about the details of jobs and career path, and second an ability to reflect on and plan around that knowledge. This chapter has outlined some important areas to consider when making those plans; however it cannot be a substitute for career guidance interventions, more of which should be given to doctors throughout their training. Most of the studies we have cited come from the psychological rather than the medical education literature and many of the best were conducted in the United States with largely non-medical samples. The relative homogeneity of medical education and postgraduate medical employment in the UK provide an ideal environment for conducting high quality research. We need to take this opportunity to conduct longitudinal studies, grounded in theory, with large samples. We also need to ensure careers counselling and interventions with doctors are evidence-based and stringently evaluated. Only then will we really understand how best to predict and guide doctors' careers.

Implications for practice

A good career means different things to different people. Individuals should reflect on their own work-related motivations, preferences, strengths and weaknesses, and make decisions in light of those reflections. Supervisors can help their trainees' career progression by encouraging them to reflect in that way, and by tailoring the advice they provide to individuals accordingly.

Motivation is a driver of career success. Supervisors can encourage autonomous, self-determined motivation by listening to students and trainees, trying to understand their points of view, and encouraging them to make their own work-related choices by giving them sufficient information, skills and opportunities.

Bolstering self-efficacy, managing outcome expectations, and setting positive and achievable goals

Further reading

Arthur MB, Hall DT, Lawrence BS. Handbook of career theory. Port Chester: Cambridge University Press, 1989.

Furnham A. The psychology of behaviour at work. The individual in the organisation. 2nd edition. Hove: Psychology Press, 2008.

Holland JL. Making vocational choices: A theory of vocational personalities and work environments. 3rd edition. Odessa, FL: Psychological Assessment Resources, 1997.

Ng T, Eby LT, Sorensen KL, Feldman DC. Predictors of objective and subjective career success: A meta-analysis. *Personnel Psychology* 2005;**58**:367-408.

Petrides KV, McManus IC. Mapping medical careers: Questionnaire assessment of career preferences in medical school applicants and final-year students. *BMC Medical Education* 2004;**4**:18.

References

Abele AE, Spurk D. The longitudinal impact of self-efficacy and career goals on objective and subjective career success. *Journal of Vocational Behavior* 2009;**74**:53-62.

Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review* 1977;**84**:191-215.

Barnett RC, Carr PL, Boisnier AD, Ash AS, Friedman RH, Moskowitz MA *et al.* Relationships of gender and career motivation to medical faculty members' production of academic publications. *Academic Medicine* 1998;**73**:180-6.

Barrick MR, Mount MK. The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology* 1991;**44**:1-26.

Barrick MR, Mount MK. Autonomy as a Moderator of the Relationships Between the Big Five Personality Dimensions and Job Performance. *Journal of Applied Psychology* 1993;**78**:111-8.

Becker GS. Human Capital. A theoretical and empirical analysis, with special reference to education. New York: National Bureau of Economic Research, 1964.

Borges NJ, Savickas ML, Jones BJ. Holland's Theory Applied to Medical Specialty Choice. *Journal of Career Assessment* 2004;**12**:188-206.

British Medical Association. Demography of medical schools - a discussion paper. 2004. London, British Medical Association.

British Medical Association. Examining equality: A survey of royal college examinations. 2006. London, British Medical Association.

Brown CA, Wakefield SE, Bullock AD. The selection of GP trainees in the West Midlands: audit of assessment centre scores by ethnicity and country of qualification. *Medical Teacher* 2001;**23**:605-9.

Brown SD, Ryan Krane NE, Brecheisen J, Castelino P, Budisin I, Miller M *et al.* Critical ingredients of career choice interventions: More analyses and new hypotheses. *Journal of Vocational Behavior* 2003;**62**:411-28.

- Burton KD, Lydon JE, D'Alessandro DU, Koestner R. The Differential Effects of Intrinsic and Identified Motivation on Well-Being and Performance: Prospective, Experimental, and Implicit Approaches to Self-Determination Theory. *Journal of Personality & Social Psychology* 2006;**91**:750-62.
- Cameron, D. A language in common. *The Psychologist*. 22(7). 2009.
- Carr PL, Ash AS, Friedman RH, Scaramucci A, Barnett RC, Szalacha LE *et al.* Relation of Family Responsibilities and Gender to the Productivity and Career Satisfaction of Medical Faculty. *Ann Intern Med* 1998;**129**:532-8.
- Coleman JS. Social Capital in the Creation of Human Capital. *The American Journal of Sociology* 1988;**94**:S95-S120.
- Connor H, Tyres C, Modood T, Hillage J. Why the Difference? A Closer Look at Higher Education Minority Ethnic Students and Graduates. RR552. 2004. Department for Education and Skills.
- Deci EL, Koestner R, Ryan RM. A Meta-Analytic Review of Experiments Examining the Effects of Extrinsic Rewards on Intrinsic Motivation. *Psychological Bulletin* 1999;**125**:627-68.
- Deci EL, Ryan RM. Facilitating Optimal Motivation and Psychological Well-Being Across Life's Domains. *Canadian Psychology* 2008;**49**:14-23.
- Dewhurst N, McManus IC, Mollon J, Dacre J, Vale JA. Performance in the MRCP(UK) Examination 2003–4: analysis of pass rates of UK graduates in relation to self-declared ethnicity and gender. *BMC Medical Education* 2007;**5**.
- Dormann C, Zapf D. Job Satisfaction: A Meta-Analysis of Stabilities. *Journal of Organizational Behavior* 2001;**22**:483-504.
- Eby LT, Allen TD, Evans SC, Ng T, DuBois DL. Does mentoring matter? A multidisciplinary me4ci.A multi P1 657.79 T323MullinT, 07;

