Beyond prevalence to process:

The role of self and identity in medical student wellbeing

Kenneth I. Mavor[1,2]

Kathleen G. McNeill[3]

Katrina Anderson[4]

Annelise Kerr[1]

Erin O'Reilly[5]

Michael J. Platow[3]

[1]ANU Medical School, Australian National University, Australia
[2]School of Psychology and Neuroscience, University of St Andrews, UK
[3]Research School of Psychology, Australian National University, Australia
[4]Aged Care Evaluation Unit, Southern NSW Health, Australia
[5]Canberra Hospital, ACT Health, Australia

Address for Correspondence:
Dr. Kenneth Mavor
School of Psychology and Neuroscience
University of St Andrews
St Mary's Quad, South Street
St Andrews, Fife, UK
ken.mavor@st-andrews.ac.uk

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Abstract

Context

Problematic stress levels amongst medical students have been well established. This stress can lead to depression, suicidal ideation, substance abuse, burnout and cynicism, having a negative effect on students and their patients.

Methods

We propose to move towards examining the processes underlying wellbeing in some medical students and vulnerability in others. We draw upon social psychological literature to propose that self-complexity, medical student identity and associated norms, all have the capacity to influence medical students' wellbeing in both positive and negative ways.

Results

We identify two key dilemmas facing medical students with regard to the social psychological factors investigated. Firstly, a diverse set of interests and a high level of self-complexity is thought to buffer against the effects of stress and might also be beneficial for medical practitioners, but the intensive nature of medical education makes it difficult for students to pursue outside interests, leading to a strongly focused identity. Secondly, a strong group identity is associated with high levels of social support and improved wellbeing, but unhealthy group norms may have a greater influence on individuals who have a strong group identity, encouraging them to engage in behaviours that place their wellbeing at risk. A model is proposed

outlining how these potentially contradictory social psychological processes may combine to impact upon medical students' wellbeing.

Conclusions

There is great scope for investigating the role of self-complexity, identity and norms in the medical education context, with room to investigate each of these factors alone and in combination. We highlight how our proposed model can inform medical educators as to the students who may be most vulnerable to the effects of stress, and the potential interventions from which they may benefit. We conclude that social psychological factors make a valuable contribution to understanding the complex issue of wellbeing in medical education.

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Introduction

A substantial literature supports the view that medical students have to deal with high levels of stress, and that this stress leads to a higher prevalence of psychological problems that undermine student wellbeing. The focus of the extant literature has largely been to demonstrate this high stress prevalence across a variety of domains, as well as to identify the features of the medical training process that are likely to be associated with this high prevalence[1,2]. In this way, this literature has been essential to the identification of the presence and scope of a clearly important educational and social problem.

We argue, however, that it is time to move beyond the focus on prevalence and to engage with a variety of literatures to propose models of the *processes* that link the stress and wellbeing factors in medical education. We believe there to be a number of idiosyncratic features of the medical education domain that both intensify and modify the operation of general psychological processes more typically associated with wellbeing, and that there is value both for medical education and the wider literature to examine medical education as an informative special case of these processes.

Moreover, it is important to focus not just on threats to wellbeing posed by the rigors of medical education, but to consider the other side of the process. Specifically, we argue that the same processes that make students vulnerable to the stress of medical education can also operate in the other direction to *increase* the

resilience of medical students. Given the high prevalence of stressors in medical education, the prevalence of problems such as depression and burnout, could plausibly be even higher. Therefore, instead of only asking what processes increase the risk of depression and burnout, we might also ask how medical education produces many resilient medical practitioners who deal successfully with the stresses of internship, graduate training and medical practice[3]. The ability of the system to produce resilient and productive graduates in the face of unique and powerful challenges is also worthy of study, and we argue that both the positive and negative aspects of wellbeing can be seen as outcomes of the same psychological processes. Consistent with the literature, we conceptualise wellbeing as the combination of quality of (and satisfaction with) life and positive affect or state of mind and the inverse of stress, burnout, depression and other mental health problems[2,4,5].

After briefly reviewing the literature on the prevalence of stress and threats to wellbeing in medical education, we turn our attention to several distinct literatures in social, clinical, and health psychology that speak to important processes in medical education. We discuss the role of self-complexity, which has been argued to be an important moderator of the effect of stressors on wellbeing in general populations[6,7]. We also discuss the importance of seeing medical education as a fundamentally *social* process, such that a sense of connection with fellow medical students and beliefs about the associated social norms impact upon individual students' experience, practice and wellbeing[8–10].

While each of these processes individually can be understood as possible explanatory processes, we go further and propose that some of these processes operate in contradictory ways in the context of medical education, and that the simultaneous operation of these opposing processes contributes to the risk factors for some medical

students. We offer an integrated model that can guide future research in this area, but which also has practical implications. The model may be useful in understanding why the patterns of wellbeing and resilience may vary between schools and when particular interventions are likely to be helpful. The model may also be useful to staff who work with students in crisis, as a way of articulating the contradictory pressures faced by those students, and as a framework for considering appropriate coping strategies.

The prevalence of stress and wellbeing problems in medical education

The high prevalence of taxing stress-levels amongst medical school students is well documented[11–13],with medical students encountering higher levels of stress compared to the general population[14]. Furthermore, high stress rates seem to continue beyond medical school to residents and senior doctors[15].

In exploring the stressors faced by medical students, many studies have not distinguished different types of stressors. Medical students, like everyone else, have to deal with personal stressors unrelated to the medical program, such as illnesses and conflicts with friends. All university students face stressors, such as balancing an academic career with a social life, negotiating working relationships with teachers, concerns about performance and personal competence, and financial concerns[16]. However, medical students face additional stressors specific to their discipline and training, including cadaver contact and dissection[17,18], witnessing patient suffering and death[19] and observing unethical behaviour by doctors[20]. It has been demonstrated that stressors specific to medical training contribute to depression in medical students over and above the impact of personal stressors[21] and may also interact with the personal stressors to intensify overall stress levels[1].

Consequences of Stress

Some researchers have suggested that a moderate amount of stress can have beneficial effects, such as challenging students to perform well[11]. In addition, some stressors within medical school are integral to training and professional development, such as contact with chronically ill patients. Therefore, the complete removal of stress is not ideal; some exposure to stress is necessary in order to develop resilience. However, when this balance is not achieved there can be particularly adverse outcomes for some students.

Depression, suicidal ideation and problematic alcohol and drug use. Numerous studies have demonstrated that more, and significant, stressful life events tend to precede the onset of depression[22]. The high prevalence of stress amongst medical students is matched by a higher prevalence of depressive symptoms amongst medical students compared to the general population[23]. As with stress, depression escalates within the first year of medical school[24] and continues throughout medical careers[25]. High numbers of both medical students and doctors report suicidal ideation[2,26,27]. Particularly concerning is the fact that these problems appear to be increasing[28]. Problematic alcohol and drug use has been identified in medical schools worldwide, including Germany[29], Turkey[30], Brazil[31] and the United Kingdom[32]. Substance use and other unhelpful strategies such as self-blame, denial and disengagement are some of the methods by which medical students attempt to cope with stress[33].

Burnout, patient care and cynicism. Burnout has been consistently linked to work-related stress[34]. When experiencing burnout, students and doctors feel emotionally diminished by their work, regard people as being objects, and feel that their work is trivial[35]. Whilst only a few studies have explored burnout amongst

medical students[1], rates appear high, ranging from 18 to 82%[36]. A high prevalence of burnout amongst doctors has been well-established[37], and it has been proposed that the process of doctor burnout originates in medical school[1]. Furthermore, there appears to be a strong relationship between stress and attrition rates from medical schools[38].

Studies involving medical students have also described an association between student distress and cynicism, a decline in empathy[39], and a reluctance to care for chronically ill, elderly and terminal patients[40]. Regrettably, this has led some to suggest that the medical school environment generates an erosion in empathy and humanitarianism[39,41].

Identity in medical education

Recently several authors in the medical education literature have turned their attention to issues of identity. Burford[42] introduced the application of social identity theory in this context to shed light on medical students' developing professional identities. Others have argued that the development of students' professional identities is as important a part of medical school as skill development[43,44] and that an understanding of medical students' identities could enhance methods of teaching[45]. We agree that examining medical students' identities is an important avenue for research and propose to extent this further by suggesting that medical students' identities are not only important for their professional development, but also play a significant role in their wellbeing. We argue that there are multiple co-occurring processes related to self and identity in medical education that can impact upon students' wellbeing in both positive and negative ways.

Specifically, we explore the psychological factors associated with self-complexity, social identity, and normative influence and argue that the contradictory application of these factors in medical education may place some students in

psychologically vulnerable situations, and may vary considerably between individuals and medical school cohorts. Some familiarity with these processes may help medical educators to better understand the dilemmas facing their students.

Self-complexity versus narrow focus on medical student identity

Linville[6,7] introduced the concept of self-complexity to explain why some people are more vulnerable than others to stressors. Self-complexity relates to the different ways people think of themselves (termed *self-aspects)*, such as their various roles, groups, activities and relationships, and the degree to which these self-aspects are *differentiated* from each other. Each self-aspect is associated with attributes, such as personality characteristics and behaviours. Self-aspects may show low differentiation, being associated with a very similar set of attributes, or they may be highly differentiated, with each being associated with a unique set of attributes. Linville described self-complexity as existing on a continuum where at one extreme individuals with low self-complexity have only a few self-aspects with a low level of differentiation between these aspects, and at the other extreme individuals with high self-complexity have a large number of self-aspects with a high degree of differentiation between these aspects. Figures 1a and b demonstrate the contrast between two imaginary persons with high and low levels of self-complexity respectively. At any given time a person will have at least one self-aspect activated by a situation and the attributes associated with that self-aspect will determine thoughts, emotions and behaviours. For instance the person described in 1a would have her *daughter* self-aspect activated by coming home and seeing her mother, and would then behave in a reserved manner.

[Figure 1 here]

As proposed by Linville, the two components of self-complexity (number of self-aspects and differentiation) are central to the processes involved in buffering against the effects of stress. When a self-aspect is activated by an event, other self-aspects, which contain overlapping features with the first, will also be activated[7]. Therefore, if a person possesses few self-aspects that are relatively similar, emotions and thoughts about one self-aspect will spread to all other self-aspects and make the person's reaction to the event more extreme[6]. For example, for the person in Figure 1a, the negative thoughts and feelings relating to a fight with her mother would spread throughout the aspects of "medical student", "daughter", and "friend" because all of these self-aspects are associated with being reserved and conscientious. On the other hand, if a person's self-aspects are numerous and relatively independent, responses to an event will remain comparatively contained, buffering against more widespread negative feelings. For example, if the person in Figure 1b has a fight with her mother, the negative thoughts and feelings associated with that fight may remain within the domain of "daughter", and need not spread to the other areas of self. Following this logic, Linville[6,7] proposed that higher levels of self-complexity buffer individuals from stressors, impacting upon the extremity of emotional reactions to events and, in turn, depression. Linville[6,7] provided data which supported this hypothesis.

Over the decades since Linville's initial contribution to this domain, numerous studies have explored the stress buffering effects of self-complexity[46–48]. The stress buffering effects appear to be particularly strong when measured over time in a longitudinal design[49], when individuals have experienced many negative life events[50] and when they experience a sense of control over their self-aspects[51]. Traditionally, self-complexity was measured using the H statistic, calculated based on participants'

sorting of traits into clusters[6]. In recent years several authors have developed a range of alternative methods to conceptualise and measure complexity of the self[52–55].

We propose that the examination of self-complexity in medical students is particularly relevant because medical students often have a narrower social world than other students and, as such, may have fewer and less diverse ways of thinking about themselves than do other students. Indeed, in a comparison of medical students and economics students, Blakey and colleagues[56] found that medical students were more socially exclusive and isolated from other disciplines, with more medical students living with, playing sports with, and forming relationships with students from their own course than the economic students. The structure and conditions of the medical course were proposed to impose physical and social obstacles that impaired medical students from interacting with non-medical students[8,56].

It is likely that this reduction in diversity of social contacts corresponds to a reduction in medical students' self-complexity. Economics students are likely to think of themselves in many different roles and as members of several different groups corresponding to their different relationships and activities, and to associate more unique characteristics to each of these aspects of their selves. In contrast, medical students are likely to remain in their medical student identity throughout various activities and relationships, since many of these they are likely to be with other medical students. Medical students are also likely to associate these activities and relationships with very similar characteristics such as those associated with being medical students (e.g., competence and motivation[8]). A quote from a Bristol University student paper captures this idea: *"A combination of time pressures and lack of enthusiasm to cultivate other interests has meant that [medical students] have become narrower people during their time at medical school, their perception of*

themselves as a "medic" vastly overshadowing any other facets of their identity- a

sad irony considering that diversity of interest and understanding makes a good

clinician"[57].

Following Linville's[6,7] hypotheses regarding the stress buffering effects of

self-complexity, medical students are likely to be more vulnerable than other students

to experiencing extreme emotional reactions and depression following stress due to

their lower levels of self-complexity. Despite this, there may also be positive qualities

associated with the medical student group from which students with low self-

complexity can benefit. Indeed, students in Weaver and colleagues'[8] sample were

found to experience high levels of inclusivity within the medical school, and associate

studying medicine with positively distinguishing qualities such as determination and

motivation. Thus, social exclusivity and isolation, on one hand, may cause students to

have lower levels of self-complexity, placing them at greater risk for mental health

problems. On the other hand, however, associating exclusively with other medical

students can provide high levels of peer unity and a strong shared sense of social

identity[8]. In the following section we discuss the benefits of social identity.

The direct positive role of social identity

In the social psychological literature there is strong evidence to suggest that

group memberships are positive for the physical and psychological wellbeing of

individuals[58]. Group memberships form the basis of many self-aspects and can also be

thought of as social identities. Group memberships act as a source of psychological

resources that individuals may access to provide protection from threats[59]. A social

support network may reduce the effects of stress through providing emotional support,

social companionship, material resources, assistance, and information[60,59]. Thus,

belonging to a particular social category, such as medical students, provides a support

network and facilitates effective coping strategies against stressors[58]. However, it is not sufficient to simply belong to a particular group; individuals must regard their group membership as being important and central to how they define themselves[59,61,62]. Indeed, social identification is often measured by the extent to which an individual places importance on, and experiences solidarity and satisfaction with, the group[63]. A strong sense of shared identity promotes positive self-esteem and is associated with higher levels of wellbeing, where individuals show a greater capacity to cope with stressors and are more likely to give and receive support from other members whom they perceive as sharing their social identity[61]. A low level of shared identity, in which the individual feels estranged and uncommitted to the group, has been associated with lower rates of supportive collaboration, and adverse effects on health and wellbeing, with greater susceptibility to stressors and psychological distress[64].

In a medical school setting this would suggest that students who feel a strong sense of shared social identity (as medical students) will be better able to cope with the stressors of medical school, more likely to receive support from fellow medical students and experience greater wellbeing. Thus, from this perspective, the social exclusivity observed amongst medical students may be beneficial for wellbeing. For medical students who feel disconnected from their student group, this would suggest that they are at particular risk of suffering the adverse effects of stress on their wellbeing.

The risk of negative normative influences on wellbeing and medical practice

In addition to experiencing direct benefits to wellbeing, individuals who highly identify with their group also take on the group values, goals and norms[63,65]. Specifically, individuals who identify more strongly with their group are more likely to behave in ways that are consistent with the group norms[10]. This could paradoxically

be detrimental to the wellbeing of such individuals when the norms of the group prescribe unhealthy behaviours. Indeed, group members who identify highly with their group have been observed to make unhealthy eating choices[9,66,67] and report greater intentions to binge drink[67] when they perceive these behaviours to be consistent with group norms.

Research to date has identified some potentially harmful norms of medical student groups. For instance, medical students perceive their fellow students as viewing mental illness as a form of weakness and believe it to have implications for future career success[68]. As a result, medical students show a reluctance to seek help for stress and symptoms of mental illness[68]. Medical students also report high levels of binge drinking and use of other drugs[29]. Interestingly, medical students overestimate the frequency and amount of binge-drinking and drug use of their peers, indicating that medical students perceived these behaviours to be normative of their group[29]. Other problematic behaviours amongst medical students that could be subject to normative effects include online posting of unprofessional material[69] and academic dishonesty[70].

Like medical education, the medical profession has been associated with relatively high levels of psychological impairment[71,72]. Heyworth[73] suggested that stress is almost compulsory and has become the expected state of a physician. That high stress can be the normative state of physicians is particularly worrying given the negative outcomes of related burnout and depression for both doctors and their patients.

While all medical students are considered to be members of the medical student group, the extent to which each individual student identifies with the group varies and should moderate his or her degree of adherence to norms. Thus, while a

high level of identification (or connection) with the medical student group is likely to provide students with increased benefits of social support, if the norms of the medical student group are unhealthy, high identification with the group may also result in unhealthy behaviours leading to poor health and undermining wellbeing outcomes.

Two dilemmas of identity, stress and wellbeing in medical education

Following our discussion of the psychological factors of self-complexity, identity and normative influence in medical education, we propose that there are two key dilemmas faced by medical students in regard to these factors.

1. A complex self (diverse sets of interests and varied associated attributes) is believed to buffer against the effects of stress and should make more resilient medical practitioners. However, the rigour of medical school creates pressure that undermines that diversity, encouraging social exclusivity within the medical program.

2. There is evidence that strong identification with a highly valued social group (such as medical students) can itself lead directly to better wellbeing, and buffer against stressors. However, a strong identity is also associated with stronger adherence to the social norms of the group, and some of the norms associated with being a medical student or medical practitioner are likely to undermine wellbeing.

These dilemmas are likely to reinforce or undermine each other. For instance medical students who chose to focus all of their time on their medical student identity are likely to have a reduced level of self-complexity but an increased level of identification with the medical student group. We propose a model by which these two dilemmas combine to influence the wellbeing of medical students, shown in the Figure 2.

[Figure 2 here]

At the centre-left of the model we capture the idea that two possible psychological mechanisms associated with wellbeing more generally can sometimes be at odds. While self-complexity can allow for a number of different social identities to be held, even strongly, the medical student identity illustrates that a strongly held identity can operate in such a way as to absorb other aspects of the self and lead to reduced complexity overall. This predicted negative relation could then cause contradictory effects on other parts of the model.

In the lower section of the model we see the well-established negative link between stressors and wellbeing. Evidence from the self-complexity literature suggests that complexity would negatively moderate this relationship. That is, higher self-complexity is believed to reduce the strength of the negative stress-wellbeing relationship. We argue that a strong positive social identity such as "medical student" would have the same moderating effect on the stress-wellbeing relationship. It is possible that these moderation effects are antagonistic, but it may also be possible that they are interchangeable such that a student could benefit from either high complexity or high social identity.

The upper section of the model shows the additional effects that social identity might have both directly, via the influence of norms on behaviour, and by moderating the effects of norms. The central horizontal line captures the known direct positive effects of a strong, positive social identity on wellbeing. The link between norms and behaviour shows the general normative effect of group membership on wellbeing-related behaviours and we note that both the norms and associated behaviours might be either positive or negative in terms of their outcomes for wellbeing. Finally, the model acknowledges the known moderating effects of identity strength on norms,

such that high identifiers are more likely to adopt and be influenced by group norms (positive or negative).

While each of the elements of the model can be supported by the general psychological literature, it is the specific need to understand the complex influences on medical student wellbeing that has led us to develop this more integrated model as a framework for further conceptual and empirical work.

Implications for research

The issues discussed in the current paper introduce several promising new directions for research in the area of medical student wellbeing. To our knowledge there has been little or no work examining the impact of these factors on the wellbeing of medical students. As such, there is considerable scope for studies that examine the impact of each of these factors separately, as well as in combination. We have suggested that each of the factors may have the potential to either enhance resilience or create vulnerability under different circumstances. Therefore, there is much work to be done to identify and establish the conditions under which these factors promote, rather than undermine, wellbeing and resilience.

Practical implications for medical schools

Our model suggests several factors that may contribute to the wellbeing of medical students and provides insight about the individuals who may be most at risk and therefore, interventions that may improve their wellbeing. The factors suggested here may act alone or in combination to place certain individuals or cohorts at increased risk of suffering from stress and associated problems. For example, a student may have very few interests and relationships outside of medical school and, therefore, have very low self-complexity, placing him or her at risk of experiencing more extreme reactions to stressors. This person would be at even greater risk if he or

she were to feel disconnected from his or her medical school cohort. In a second example, a cohort of medical students may be at heightened risk for health and wellbeing problems if there is a strong norm of binge-drinking and illicit drug use in the cohort. Within this student group the individuals who will be at heightened risk would be those who identify most strongly with the group. Appropriate interventions might include support and encouragement to undertake activities outside of the medical field (for the individual with low self-complexity), activities that promote cooperation amongst students (for the individual who feels disconnected from the cohort) and the promotion of healthy norms (for the cohort with a strong binge-drinking norm). Thus, the model provides a basis for identifying the various interventions that might be most helpful in different contexts, and some basis for diagnosing the needs of particular individuals or cohorts.

Conclusions

We propose a novel, integrated model of several identity-related processes that may underpin the relatively high prevalence of wellbeing problems in medical students. By offering this psychological model, we seek to help advance the literature beyond a focus on prevalence toward testing specific models of process. We also support the growing interest in identity processes in medical education by exploring their role in wellbeing as well as in the domain of professionalism. We believe that the model offered provides a solid theoretical foundation to support further empirical work testing these relationships, individually or in combination, as well as a practical tool for analysing the factors that influence medical student wellbeing in a range of contexts.

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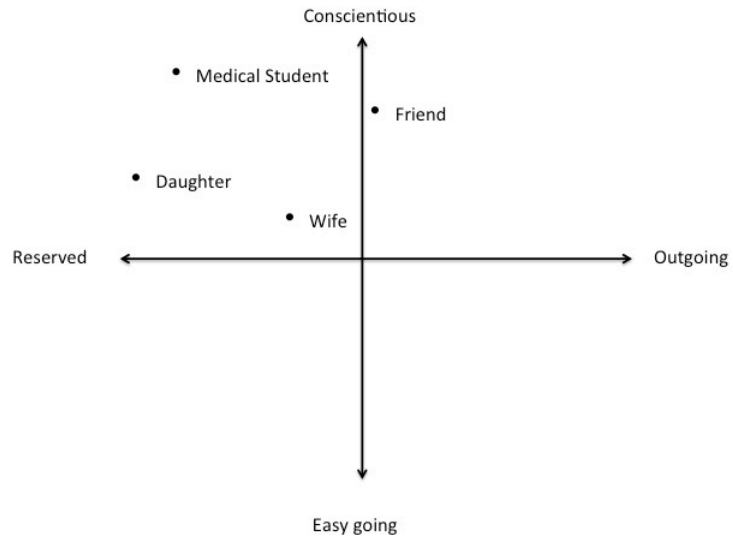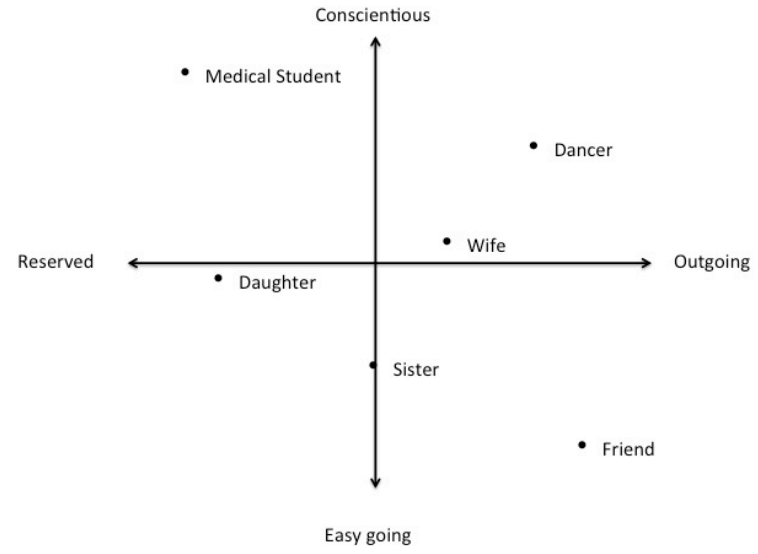
Figure 1. *Example of an individual with low self-complexity (A) and high self-complexity (B)*

Figure 2. Proposed model to describe the interacting effects of self-complexity, identity and norms on the wellbeing of medical students.