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Peer influence in clinical workplace learning

Raat, Adriana

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Chapter 5

Student distress in clinical workplace learning: differences in social comparison behaviours

A.N. (Janet) Raat

Johanna Schönrock-Adema

Elizabeth A van Hell

Jan B.M. Kuks

Janke Cohen-Schotanus

ABSTRACT

In medical education, student distress is known to hamper learning and professional development. To address this problem, recent studies aimed at helping students cope with stressful situations. Undergraduate students in clinical practice frequently use experiences of surrounding peers to estimate their abilities to master such challenging situations. This use of the experiences of others, known as social comparison, may affect student distress both positively and negatively. To find characteristics of a beneficial use of social comparison, we examined differences in comparison behaviours between students expressing low and high levels of distress.

The participants in our study, response rate 93% (N=301/321), were all medical students in their first year in clinical practice. They completed the General Health Questionnaire (GHQ-12) to measure distress, and three separate questionnaires to measure: (1) orientation to comparison, (2) motive for comparison, and (3) interpretation of comparison. Differences were analysed using multivariate analysis of variance.

Although all students were oriented towards social comparison, the analyses showed that this orientation was less apparent among low-distress students. Besides, the low-distress students were less inclined to use motives indicative for comparisons with peers perceived as performing worse and were less negative in the interpretations of their comparisons.

As social comparison is frequently used among all students, we recommend to make them aware of their comparison behaviours and inform them about the pros and cons of the distinguished aspects of the comparison process.

INTRODUCTION

In clinical workplace learning, undergraduate medical students have to learn, apply and develop their professional competences in a dynamic, real-life clinical context. Throughout this period, they will meet a variety of stress provoking challenges, like entering a novel rotation, with new tasks and unfamiliar supervisor relationships.^{1,2} Previous research has shown that students often use the experiences of surrounding peers to estimate their abilities to master such challenges.³ The use of the experiences of similar others to estimate one's own opportunities to succeed, is known as social comparison.⁴ Social comparison is a main source of self-efficacy and, as such, contributes to people's self-confidence.⁵ However, the use of social comparison can also cause distress,⁶ which is a considerable problem in medical education.⁷ The aim of this study is to investigate whether the comparison behaviours of students expressing low levels of distress differ from those of students expressing high levels of distress. Finding such differences might offer opportunities to help distressed students apply social comparison to their benefit.

Positive aspects of the challenges presented by undergraduate clinical workplace learning pertain to increased motivation and rapid personal and professional development.^{1,8} However, the same challenges are also known to cause distress.^{1,9,10} Student distress hampers learning and interferes with professional development.¹¹ In the long run, distress is even acknowledged to affect personal well-being and patient care.¹² Despite these serious consequences, the problem of student distress is still difficult to address. In psychological literature, the focus is more and more on gaining a scientific understanding of the positive and adaptive strategies of human behaviour.^{13,14} Also in medical education, there seems to be a shift towards helping students cope with stressors that arise throughout their medical training and future careers,¹⁵ such as supporting students' self-care,¹⁶ and nurturing students' resilience.¹⁷ Finding differences between more and less favourable comparison strategies may add to these attempts to enable students to cope with stressful situations because it might offer opportunities to encourage them using social comparison to their benefit.

Social comparison is defined as the process of thinking about information of one or more others in relation to the self.¹⁸ These others are preferably so-called 'similar others' – like peer students¹⁹ – because their positions,

successes and failures are considered most informative to estimate one's own current position and abilities to succeed.⁴ Social comparison is frequently used to estimate one's own abilities to master a novel situation.²⁰ When the outcome is positive, such a comparison will be stimulating and raise self-confidence.⁵ However, estimating one's own abilities to master the demands of a situation also comes to the initial cause of psychological distress.²¹ When these demands are estimated as outweighing one's abilities, the situation will be perceived as threatening and raise feelings of distress.¹² For example, a student, who has lost some of his/her self-confidence after a rather critical encounter with a new supervisor may compare this experience with those of peer students who had the same supervisor. Such a comparison can ease the student's conscience as it provides the opportunity to put the incident into perspective. However, when a negative interpretation of the comparison emphasizes his/her alarming position, it can also increase his/her distress. Since the process of social comparison is at the basis of the development of distress, we might learn from the comparison behaviours of students with low levels of distress. Therefore, we contrasted the social comparison behaviours of low-distress students with those of high-distress students on three aspects of the comparison process, as explained below.

Orientation to comparison

Confronted with information about what similar others can or cannot do, almost all people are inclined to relate this information to themselves.²² Despite this general use of the comparison strategy, some people are more inclined to compare themselves than others. These individual differences are labelled as *social comparison orientation*, SCO.²³ People high in SCO are known to compare themselves more frequently *and* to be more affected by their comparisons.²⁴ Students in clinical workplace learning are known to vary in their individual SCO as well.¹⁹ Our first question relates to this variance and addresses whether students expressing low levels of distress differ in their orientation to compare from students expressing high levels of distress.

Motive for comparison

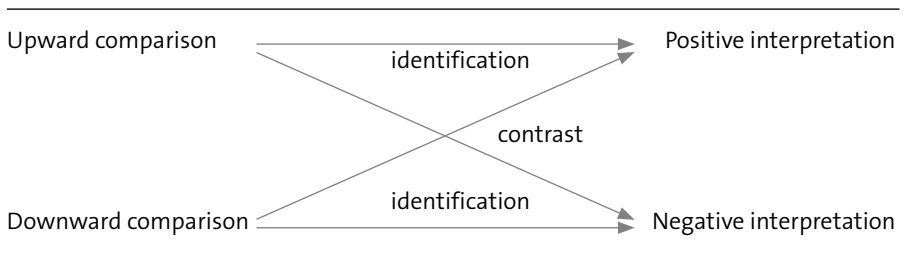
In social comparison literature, three main motives for the use of social comparison are distinguished: *self-evaluation*, to evaluate one's own position, *self-improvement*, to improve oneself, and *self-enhancement*, to feel better about oneself.²⁵ The last two motives are known to guide the direction of a

comparison. People who use the motive self-improvement are more inclined to compare themselves upward, with others perceived as performing better. Alternatively, people who use the motive self-enhancement are found to prefer downward comparisons, with others perceived as performing less good.²⁶ Our second question addresses whether students expressing low levels of distress use different motives for their comparisons than students expressing high levels of distress.

Interpretation of comparison

The interpretation of a comparison can be either positive or negative, in both upward and downward comparison situations. In social comparison theory, the interpretation of a comparison is explained by the model of *identification* and *contrast*, see Figure 1.²⁷ In upward comparison situations, people who identify themselves with a better performing other – like ‘I can do it as well’ – tend to give a positive interpretation. On the other hand, people who contrast themselves to a more successful other – like ‘I will never be that good’ – will be inclined to give a negative interpretation.

Figure 1. Schematic illustration of the interpretation of upward and downward comparison through identification and contrast.



In downward comparison situations, however, people who identify themselves with a less successful other – like ‘I will not succeed either’ – tend to give a negative interpretation. Alternatively, people who contrast themselves with a worse performing other – like ‘I can do it better’ – will be inclined to give a positive interpretation.²⁷ Our third question addresses whether there are differences in the interpretation of comparison between students expressing low and high levels of distress.

Summarizing, in this study we investigated if students expressing low levels of distress differ in their use of social comparison from students expressing high levels of distress. Therefore, we examined three main aspects of their comparison behaviours: (1) orientation to comparison, (2) motive for comparison, and (3) interpretation of comparison.

METHODS

Context and population

Participants were all undergraduate medical students at the University of Groningen, The Netherlands. The undergraduate curriculum of this University consists of 6 years of medical training: a three-year (pre-clinical) Bachelor's degree program followed by a three-year Master's degree program. The Master's degree program is a clinical program, except for 20 weeks of scientific research. All participating students were in their first year of this Master's degree program and had completed at least two fulltime clinical rotations of 6 weeks each, in which they participated in the activities of the practice concerned. The study was introduced on paper. All students who decided to participate gave their informed consent. Participation was voluntary and anonymous and took approximately 10 minutes of their time. The study was approved by the Ethical Review Board of the Netherlands Association of Medical Education, NVMO-ERB.²⁸

Measures

Student distress was measured with the Dutch version of the General Health Questionnaire, GHQ-12.²⁹ We selected this validated questionnaire because it is widely used and explicitly focusses on distress as a short-term episode (i.e. state variable). The questionnaire consists of 12 items starting with 'Have you recently' followed by, for example '... been able to concentrate on whatever you are doing? ... lost much sleep over worry?' and '... felt constantly under strain?'. All items are Likert-type ranging from 1 (indicating lower distress) to 4 (indicating higher distress). The outcome measure as used, is the sum score, which allows a minimum score of 12 and a maximum score of 48, with higher scores indicating higher levels of distress.

Orientation to comparison was measured with the Iowa-Netherlands Comparison Orientation Measure, INCOM.²³ This questionnaire was specifically developed to measure the tendency to engage in social comparison and is the only validated questionnaire available. The questionnaire consists of 11 items like 'I always like to know what others in a similar situation would do' and 'I often compare myself with others with respect to what I have accomplished'. All items are Likert-type (1=strongly disagree; 5=strongly agree). The mean score represents students' social comparison orientation, SCO. The higher the score, the higher students' orientation to compare themselves.

Motive for comparison was measured by 18 items addressing the three main motives for comparison, adopted from social comparison research measuring a variety of motives for comparison.³⁰ Both for upward and for downward comparison, we used 9 items. Items aimed at measuring motives for upward comparison were introduced by 'It is likely that you compared yourself, at times, with a peer student whose performances are perceived as *better* than yours...'. Items aimed at measuring motives for downward comparison were introduced similarly but this sentence ended with '*... as less good* than yours'. Per direction, the three main motives for comparison: self-evaluation, self-improvement and self-enhancement, were represented by 3 items each. These items ended like '*...to evaluate my own performances*', '*...to improve myself*' and '*...to feel better*'. All 18 items were Likert-type (1=strongly disagree; 5=strongly agree). Per direction, we calculated for each of the three motives the mean score. The higher the score, the more the specific motive was used. To control for sequence effects, half of the participants started with the 9 items on upward comparison and the other half with the 9 items on downward comparison.

Interpretation of comparison was measured with the same instrument that was specifically developed to measure medical students' interpretation of comparison while learning social skills in groups.⁶ This instrument consists of 8 items, 4 for upward and 4 for downward comparison. For upward comparison, 2 items were aimed at measuring *identification*, like 'If you compare yourself with a peer student whose performances are perceived as better than yours. How often do you think "I can do it as well"'. The other 2 items were aimed at measuring *contrast* and started similarly, but ended like 'How often do you think "I will never be that good"'. For downward comparison, also 2 items were aimed at measuring *identification*, like 'If you compare yourself with a

peer student whose performances are perceived as less good than yours. How often do you think “Next time, I could be less good as well”’. The other 2 items were aimed at measuring *contrast*. These items started similarly but ended like ‘How often do you think “I can do it better”’. Per direction, we calculated for each interpretation the mean score. The higher the score, the more the specific interpretation is given. To control for sequence effects, half of the participants started with the 4 items on upward comparison and the other half with the 4 items on downward comparison.

Analysis

To contrast students expressing low and high levels of distress, we composed two groups based on respondents’ lowest and highest GHQ-12 sum scores. Each group included around 30% of the respondents. We used MANOVA to examine differences between low and high-distress students in: (1) orientation to comparison, (2) motives for comparison, and (3) interpretation of comparison.

RESULTS

All questionnaires were completed by 301 out of 321 students (93%). Of these respondents, 34% were male, which is representative of the gender distribution of medical students in the university under study. The mean sum score for the GHQ-12 was 22.33 (SD=4.46) on a scale ranging from 12 (lowest on distress) to 48 (highest on distress). No significant differences were found between the mean sum scores of male and female students ($t(299)=0.142$, $p=0.887$).

The MANOVA revealed a significant multivariate effect for distress on social comparison behaviour ($F(11,171)=2.44$, $p<.01$), see Table 1. Inspection of the between-subjects effects for each of the dependent variables showed that this overall effect was attributable to differences on all three aspects of students’ comparison behaviours (orientation to comparison, motives for comparison, and interpretation of comparison).

Table 1 Multivariate Analysis of Variance Results, means (M) and standard deviations (SD), for low and high-distress students on three aspects of their comparison behaviour in clinical workplace learning: orientation to comparison (SCO), motive for comparison and interpretation of comparison.

Comparison behaviour	Low distress n=88		High distress n=95	
	M	(SD)	M	(SD)
Orientation to comparison	3.47	(.54)	3.66	(.54)
Social Comparison Orientation, SCO*				
Motives for comparison				
- self-evaluation (upward)	3.71	(.75)	3.82	(.69)
- self-improvement (upward)	3.62	(.85)	3.70	(.86)
- self-enhancement (upward)	2.55	(.78)	2.46	(.77)
- self-evaluation (downward)	3.15	(.91)	3.29	(.87)
- self-improvement (downward)*	2.31	(.82)	2.62	(.91)
- self-enhancement (downward)**	3.05	(1.04)	3.46	(.83)
Interpretation of comparison				
- identification (upward)	3.47	(.71)	3.33	(.72)
- contrast (upward)***	2.31	(.89)	2.82	(.92)
- identification (downward)**	2.72	(1.02)	3.16	(.91)
- contrast (downward)	3.55	(.76)	3.73	(.60)

Multivariate test

	Value	F	Hypothesis df	Error df	p
Pillai's Trace	.136	2.44	11	171	.112

Tests of between-subject effects

Source	Dependent variable	Type III sum of squares	df	F	p
low/high distress	Social Comparison Orientation, SCO*	1.55	1	5.39	.021
	Self-improvement (downward)*	4.40	1	5.85	.017
	Self-enhancement (downward)**	7.84	1	8.94	.003
	Contrast (upward)***	11.94	1	14.60	.000
	Identification (downward)**	8.94	1	9.55	.002

*p<.05; **p<.01; ***p<.001

Orientation to comparison

Both groups showed an orientation towards social comparison, however, low-distress students scored significantly lower on SCO than high-distress students ($F=5.39, p<.05$).

Motive for comparison

In upward comparison situations, no differences were found between low and high-distress students and their motives used for comparisons with peers perceived as performing better. In downward comparison situations, with peers perceived as performing worse, low-distress students used the motives self-improvement and self-enhancement less often than high-distress students ($F=5.85, p<.05$, and $F=8.94, p<.01$, respectively).

Interpretation of comparison

No differences were found between low and high-distress students and positive interpretations of comparison. They all showed identification with peers perceived as performing better, like: 'I can do it as well', and contrast with peers perceived as performing worse, like: 'I can do it better'. However, low-distress students interpreted their comparisons less often negatively. High-distress students contrasted themselves more with peers perceived as performing better, like: 'I will never be that good' and identified themselves more with peers perceived as performing worse, like: 'I will not succeed either' ($F=14.60, p<.001$ and $F=9.55, p<.01$, respectively).

DISCUSSION

This study revealed that the comparison behaviours of students expressing low distress differ from those of students expressing high distress, on all distinguished aspects of the comparison process. Low-distress students were less orientated to social comparison. They less frequently used the motives self-enhancement and self-improvement for comparisons with peers perceived as performing worse. Furthermore, they interpreted their comparisons less negatively in both directions of comparison, with peers perceived as performing better and worse.

Our first finding was that low-distress students were relatively low in social comparison orientation, SCO. This means that their use of social comparison is more selective or limited than that of high-distress students, who were higher in SCO. Given this result, one might question if low-distress students with a low comparison orientation are type A high achievers and perhaps more autonomous, while high-distress students with a high comparison orientation, are more socially-oriented. However, people high in SCO have been found to differ on three features: ambitiousness, empathy and uncertainty.²⁴ Therefore, both high achievers (being ambitious: 'Am I still on top?') and more socially oriented people (being able to put themselves in the position of others) are seen among people, or students, high in SCO.

In general, people high in SCO share the high inclination to compare themselves more frequently and to pay more attention to their comparisons.²⁴ The high extent with which they think and rethink a comparison outcome enlarges its impact. This will be advantageous when the comparison outcome is *positive*, for example, when a student who worries about his/her performance in the next rotation gains more self-confidence by comparing with a similarly performing peer who has successfully completed that rotation. However, in performance and work-related contexts, it was repeatedly found that most people high in SCO tend to focus on the *negative* comparison outcomes.^{31,32} Consequently, the high-distress students in our study seem to be at risk of pondering about negative comparison outcomes. Our findings about low-distress students' relatively lower SCO indicate that a more selective use of social comparison may prevent such a risk.

Second, if comparing themselves with a peer perceived as performing worse, low-distress students were less inclined to use the motives self-enhancement and self-improvement than high-distress students. Particularly, the use of the motive self-enhancement – or need to feel better – is related to a preference for downward comparisons.³³ Consequently, the little use of this motive by low-distress students indicates that they are not particularly interested in comparisons with others perceived as performing less good. In contrast, the frequent use of the motive self-enhancement by high-distress students suggests a preference to this downward direction of comparison. Such a preference is understandable as downward comparisons are known to enhance self-confidence,³³ which in turn may contribute to improved performance.^{5,34}

For example, a student experiencing some difficulties mastering his/her first patient history may gain self-confidence by observing a peer who has more difficulties with the time and structure of taking a patient history. However, downward comparison has its drawbacks as well. In the long run, a preference for downward comparison may lead to lowering of personal standards, in particular if someone identifies himself with the less performing other.³³ This line of reasoning implies that the comparison behaviours of high-distress students may negatively affect their own performance over time. Students low on distress seem to remain free from this long-term risk of downward comparison.

Third, we did not find differences between low and high-distress students and positive interpretations of comparison. Such interpretations like 'I can do it as well' and 'I can do it better' are known to strengthen self-efficacy.⁵ So far, the use of social comparison is rewarding and, therefore, attractive to all students. However, high-distress students seem to counterbalance the positive interpretations by negative ones. Such negative interpretations of one's own abilities to master a situation – like 'I can't do that' and 'I will not succeed either' – are known to raise distress.²¹ Given the negative impact of distress on students' learning and personal development,¹¹ it could be argued that such interpretations may also affect their learning. In other words, high-distress students are at risk of boosting their own distress by negatively interpreting their comparisons, and hampering their performances, especially when they also tend to ponder about these negative outcomes. Further research is recommended to investigate the relation between students' levels of distress, their more or less beneficial comparison behaviours and clinical performances.

So what can we learn from these findings to help students cope with stressors in clinical practice? The comparison behaviours of low-distress students can be characterized by: limited comparisons, less use of motives indicative for comparisons with peers perceived as performing worse, and less negative interpretations of the comparisons they make. Therefore, the use of social comparison seems to be more effective for these students on all distinguished aspects of the comparison process. As such, low-distress students' comparison behaviours may also support resilience. The concept of resilience includes: being in control, having self-confidence, and being committed to the idea that one's own efforts are worthwhile, and that potential threatening events

are manageable.¹⁷ In medical training, resilience is considered essential for coping with stressful situations in clinical practice.⁷ To reduce distress and support resilience, it seems advisable to take the use of social comparison into account. Our study seem to offer starting points to help students develop better comparison strategies. For instance, they can be *made aware* of their own comparison behaviours by asking them to reflect on the comparisons they make prior to a stressful activity, like entering a novel rotation. They can be *informed* about separate aspects of the comparison process by explaining the pros and cons of the orientation to comparison, motives for comparison and interpretations of comparison. They can also be explicitly *warned* for ruminating on negative comparison outcomes and for long-term effects of identifying themselves with peers performing worse. Further research should focus on attempts to adjust students' use of social comparison.

The findings of our study may also provoke thoughts about what this means for theories on student learning in clinical practice and what students may achieve throughout their future health care careers. Particularly, since modern medicine moves into a more collaborative, team-based approach.³⁵ Collaboration almost inevitably involves social comparison.³⁶ Students who share the idea of becoming full members of future health care teams, will compare themselves with one another to estimate their current position and opportunities to master the challenges of active engagement, which is in line with Wenger's explanation of learning in communities of practice.³⁷ Given the risks of a disadvantageous comparison strategy, we urge supervisors to be aware of students' inclination to compare and of the positive *and* negative consequences of them doing so.

Some strengths of our study include the refined measurement of comparison behaviours, a high response rate, and the use of multivariate analysis. A first limitation is the use of self-reported data, which carry the risk of bias. However, the use of self-perceptions is inevitable since social comparison is an internal process that takes place in people's minds and, therefore, cannot be measured otherwise. Second, we limited our study to investigating stress as a state variable. This implies that the outcomes of this study cannot be generalized to distress as a trait variable (i.e. distress as an individual's long-term predisposition). A third limitation is that our study included only one site. This limitation can best be overcome by performing similar studies at other sites.

Conclusion

The outcomes of this study showed relevant differences between the comparison behaviours of students expressing low and high levels of distress. The more selective and positive use of social comparison by low-distress students may strengthen their resilience. The comparison behaviours of high-distress students, on the other hand, bears the risk of increased distress. Therefore, we recommend to take students' comparison behaviours into account when helping them learn how to cope with stressors in clinical practice. We advise to make students aware of their use of social comparison and to inform them about the pros and cons of the distinguished aspects of the comparison process.

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