



Student nurses and non-healthcare students' understanding of anorexia nervosa

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ABSTRACT

Previous research has implicated any form of misunderstanding of anorexia, by both healthcare professionals and laypeople to have potentially fatal consequences for anorexia sufferers. This research aimed to establish student nurses' and non-healthcare students' understanding of anorexia nervosa by the use of a quantitative questionnaire that both student nurses (N = 50) and non-healthcare students (N = 50) completed. In order to determine different aspects of students' understanding, questionnaire items were generated from three different sources; the DSM-IV (2000), findings from research literature and popular misconceptions. A 2x3 ANOVA was used to analyse the data and determine main effects of source, student type and an interaction effect. The study also aimed to determine whether a student's personal, social experience or clinical experience anorexia impacted upon their understanding. Results indicated a main effect of source on understanding, as well a significant interaction effect between source and student, however a main effect of student was not observed. Higher understanding of anorexia was found for students with social and clinical experience of the disease. No group of items was understood entirely, offering support for previous research; however, both groups of students were found to have enhanced understanding to that suggested by earlier findings.

KEY WORDS:	ANOREXIA	UNDERSTANDING	MISCONCEPTIONS	STUDENT NURSES	DSM
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Introduction

The DSM-IV (2000) defines anorexia as 'failure to maintain body weight of at least 85% of what is expected, fear of losing control of your weight or becoming fat'. Hudson et al. (2007) found lifetime prevalence estimates of DSM-IV (2000) anorexia to be 0.9% among women and 0.3% among men. Silverstein et al. (2009) found eating disorders are on the increase amongst children under 12, boys and young men and the DSM-IV (2000) states that 10% of anorexia sufferers are male.

Major causes of anorexia include biology and genetics, 'first degree relatives and fraternal twins of those with anorexia are more likely to develop the disorder themselves', DSM-IV (2000). The DSM-IV (2000) also reports certain sociocultural factors, such as coming from an over controlling family and being sexually abused as contributing somewhat to the development of anorexia. It would be interesting to assess the extent to which these true criteria are understood as we have been lead to believe that anorexia and other eating disorders are only a young, white, women's problem, (Costin, 2006).

There are conflicting discourses regarding the phenomenon of anorexia. The medicalisation critique, made famous by Foucault (1969), argued that the growth of the medical dominant discourse lead to the medicalisation of the body. As society assigned expertise over the body to medics, the phenomenon of self-starvation, defined as anorexia developed, and this knowledge was disseminated through the use of medical tools such as the DSM. Foucault (1969) argued anorexia would be better understood as a disorder of society rather than a medical problem, believing anorexic behaviour to be submission to social control, as well as in some ways a rebellion against it.

According to Orbach (1986) women are made vulnerable to anorexia due to the central part of food in their traditional social role, as well as the fact that the female body has become a commodity that she uses to negotiate the world. The receptivity women show towards the idea of enhancing their bodies, 'their bodies are like gardens- arenas for constant improvement and resculpting', (Orbach, 1986:74) is due to their acknowledgment of this. Orbach further argues that the female body carries an immense amount of cultural significance and even goes as far to say the body is offered as a woman's ticket into society, as through it she is able to meet a mate, meaning her sexuality and role can be legitimised, (Orbach, 1986, cited in Pollack, 1995). The body therefore can be used as a weapon to either conform or reject current femininity ideals.

According to psychodynamic theory (Klein & Money-Kyrle, 1955), defence mechanisms also play a part; defence mechanisms highlight a woman's discomfort with herself and 'Anorexia becomes the quintessential expression of that discomfort with oneself- it is an extreme manifestation of the denial of selfhood.' (Orbach, 1986:28).

There are various misconceptions about anorexia (Orbach, 1985, cited in Emmett, 1986), which cause health practitioners to become frightened by the problem; leading to ignorance, which in turn leads to the development of theories and treatment models based on practitioners' prejudices rather than the client's needs. Bruch, an early protagonist in the debate about the nature of anorexia (1979) argues

that for effective treatment of anorexia, these misconceptions must be identified and corrected. Medical practitioners also have a limited picture as many cases go undiagnosed and subsequently resolve themselves, (Hudson et al. 2007).

Kilbourne (1999) assessed the size of models in relation to average women over time and reported the average model to be 23% thinner than the average woman, compared to only 8% thinner twenty five years earlier. Many people believe this to be the primary reason for the onset of eating disorders, (Paterson, 2002). However, Brewerton et al. (2009) argue that despite the commonly held misconception, there is no compelling evidence that sociocultural factors alone cause anorexia. Tartakovsky (2010) argues that the media having a major role in making someone vulnerable to anorexia or bulimia is one of the biggest misconceptions about eating disorders.

Hoek and Hoeken (2003) provide additional evidence against this misconception in their finding that the incidence of anorexia has increased steadily over the past century until the 1970s, since when, it has remained constant. If the influence of the media was the only contributing factor to the development of anorexia then it is likely that incidence would have continued to rise due to the increase in the number of magazines, television channels and the internet; it is clear therefore that the onset of anorexia must be attributed to alternate factors. These factors may be found in the biology of the disease, Cox (2010) explains that in periods of starvation, as well as during extremes of crash dieting and bulimia, endorphins are released to relieve pain, which may become addictive.

Although anorexia primarily affects females, research has shown that more needs to be known concerning anorexia in males. Dinah (2011) found a lack of understanding surrounding, and stigmas associated with male anorexia in Ireland; he argued this can lead to misdiagnosis, which can end in fatality, as the more time an individual goes without treatment the harder it will be for them to recover.

Research also highlights certain groups of individuals that may be more prone to developing the disease; Bogdana et al. (2008) conducted a meta-analysis that has shown individuals with careers that require them to maintain a certain weight such as athletes are at higher risk for developing an eating disorder than the average person. Links have also been found between anorexia and depression, (Carmen, 2004), anxiety, (Kaye et al. 2004) and alcohol use disorders, (Bulik et al. 2004).

Shepphird (2009) highlights prevalent misconceptions about anorexia, including; individuals with anorexia are just trying to get attention, anorexia is about vanity and if a person with anorexia says 'I feel fat' it's just to get compliments, people choose to have anorexia, eating disorders are primarily about food and weight, a person cannot have anorexia if they eat three meals a day and you cannot die from anorexia if you exercise to keep your heart and body strong.

Understanding of Anorexia

How best to understand anorexia is crucial, not only because of the vast number of misconceptions, but also due to it having a negative impact on quality of life and a high mortality rate. Arcelus (2011) conducted a meta-analysis of 36 studies and found anorexia to have a mortality rate of 5 per 1000 person-years; furthermore one in five deaths was a result of suicide. Pompoli et al. (2004) conducted a meta-

analysis concerning suicide in anorexia and found it to be a major cause of death among individuals with the disorder, however this is largely underestimated (Pompoli et al. 2006, cited in, Swain, 2006).

Assumptions are often made that underestimate the seriousness of anorexia; Holliday et al. (2005) found a difference between the views of laypeople and the experiences of anorexia sufferers themselves. Laypeople were found to believe that anorexia has a positive prognosis, whereas anorexia sufferers viewed their illness as chronic with a poor prognosis. According to Stanley (1999), one reason for this may be due to celebrities being accused of suffering from anorexia when they are seen to have lost weight; in turn, people begin to see the disease as less serious than it actually is and the term anorexia becomes loosened, 'We use the term to describe any woman who's skinny- whether she's perfectly healthy or possibly sick- and in doing so, we trivialize an illness that is excruciatingly real.' (Stanley, 1999:46) This has also been seen to happen in other psychological disorders such as depression; people often describe themselves as depressed, causing depression to become an everyday term rather than a specialist term that was first used only to describe the true disorder.

The misconceptions prevalent and conflicting information about anorexia is a problem, as there is evidence to suggest that the information about anorexia given to individuals can cause a wide difference in their own opinions of sufferers. Bulik et al. (2008) conducted a study in which 115 undergraduate nursing students from the University of North Carolina were given a questionnaire about the potential causes of anorexia nervosa. Half of the participants were firstly given an information sheet that contained what is known about biological and genetic causes of the disorder and half were given information regarding sociocultural causes. It was found, that those given biological and genetic explanations were less likely to hold blame with anorexia sufferers for their disease.

Although a limited sample was used, it is clearly essential for healthcare students to understand the facts about anorexia, however according to Bulik et al. (2008) the nursing students' misunderstanding in the study is no surprise, 'There is a lot of false information about anorexia nervosa disseminated in pop culture. This study suggests that even a nugget of accurate biological information can influence how healthcare professionals perceive the illness.' (Bulik et al. 2008). A study conducted at the University of Cincinnati also reported many students to be unaware of the warning signs of eating disorders, Hoffman (2011).

Similar studies have also been carried out cross culturally; Lee (1997) investigated Chinese students' perceptions of anorexia in Hong Kong. A self-report questionnaire that contained both lay and explanatory models of anorexia was administered to 842 undergraduate students. 34% of the sample believed anorexia arose from mixed aetiologies; the most common beliefs about anorexia included appetitive complaints, sadness and fat phobia. It was also found that the students perceived anorexia to affect women from affluent societies and require help from family members as well as healthcare professionals. Interestingly, there was little difference in the perceptions of students that had read lay or professional epistemologies. The researcher suggests that this implies that in psychiatric disease with unknown etiology, lay people may construct knowledge in a similar fashion to professionals.

Wingfield et al. (2010) also conducted a study to establish college students' perceptions of anorexia; however, theirs differed in that different scenarios about fictional characters of different ethnicity, gender, eating disorder and etiology were read to participants in order to establish their views. Results showed that the characters suffering from anorexia were viewed as being more self controlled than those with other eating disorders; characters whose disease was caused by sociocultural factors were viewed as more likely to recover, however those with a biological aetiology were viewed as the most likeable and less responsible for their eating disorder. Participants own eating disorder symptoms as well as their previous level of contact with eating disorders were associated with viewing characters as more similar and self-controlled. Female participants were found to attribute less blame to the eating disorder sufferers than males.

It is perhaps due to this false information and misunderstanding that only one in ten men and women with eating disorders receive treatment, and of those, only 35% are treated at a specialized eating disorders facility, (Noordenbox, 2002). If more healthcare professionals had an increased knowledge, this may not be the case and for this to happen their understanding needs to be based entirely on factual information. It is not only healthcare professionals but also the general population that would benefit anorexia sufferers by having an increased understanding, as if more people were able to spot the signs, they may be able to get friends and family into treatment earlier and earlier intervention means better prognosis, (Samour et al. 1999).

Ramjan (2004) emphasised the importance of the therapeutic relationship between nurse and anorexia patient and found understanding to be an important factor in developing this relationship. It is therefore vital that healthcare students understand the facts about anorexia, and that their views are not affected by common myths and misconceptions, as this could affect the way they view their patients, compromising their treatment and care.

This research aimed to establish student nurses' and non-healthcare students' understanding of anorexia. The use of student nurses allowed an insight into the understanding of individuals who will become part of the healthcare profession, and the use of non-healthcare students allowed for a comparison to be made, as well as provide insight into the understanding of a typical student.

By using a quantitative questionnaire containing three groups of statements about anorexia, generated from three different sources (the DSM-IV (2000), research literature and popular misconceptions), it was possible to establish whether the two groups of students perceived a wide range of both correct and incorrect statements to be true or false. The questionnaire also included one additional question asking participants to report their own experience of anorexia; personal, social or clinical, as previous research does not appear to account for this. Differences in participants' gender and age were also considered.

Research Aims

1. Establish whether the source statements are generated from has a significant effect on participants' understanding of anorexia (within-subjects variable).
2. Establish whether being a student nurse or non-healthcare student has a significant effect on understanding of anorexia (between-groups variable).

3. Establish whether there is a significant relationship between these two variables (interaction effect).
4. Establish whether a students' own experience of anorexia affects their understanding and determine whether age and gender have an effect.

Method

Design

A 2x3 mixed design was used as there was a mixture of between-group and repeated measures variables, (Field, 2008). The repeated measures variables were the three groups of statements regarding anorexia that were generated from three different sources. The between-subjects variable was the type of participant; whether a student nurse or non-healthcare student completed the questionnaire. The dependent variable was the response made by the participant.

Participants

100 participants; 50 student nurses and 50 non-healthcare students took part in the study. Of these, 83% were female, (N = 83) and 17% male, (N = 17). 73% of participants were between 18-21, (N = 73), 19% 22-25, (N = 19), 5% 26-29, (N = 5) and 3% over 30, (N = 3).

As each participant completed all three levels of data, this ensured the statistical power of the ANOVA was not compromised (Cohen, 1988).

Materials

Two ethics forms were used; an ECF Application for Ethics Approval Form (Appendix 2) and a AEAF Ethics Check Form (Appendix 3). The questionnaire and a debrief (Appendix 1) were the only other materials required to carry out the study.

Health Questionnaire- Students' Opinions of Anorexia

A quantitative questionnaire (Appendix 1) was created by the researcher to establish student nurses' and non-healthcare students' understanding of anorexia; quantitative methods can provide a high level of measurement, precision and statistical power, (Matveev, 2002). The questionnaire comprised of 33 closed ended items to be responded to on a 5-point Likert scale; before settling on this number of items a small sample of participants completed the questionnaire and believed it to be the optimum length as it was not too long for them to begin to lose interest in the study.

11 items on the questionnaire were factual statements about anorexia, generated from the DSM-IV (2000), 11 items were based upon findings from research literature; such as athletes are more likely to develop eating disorders than non-athletes, (Bogdana et al. 2008) and the final 11 items were false statements based upon popular misconceptions prevalent in popular culture and the media such as those highlighted by Shepphird (2009).

Tittle et al. (1967) proposed the Likert scale to be the most widely used method of scaling in the social sciences and suggested this to be due to ease of use, construction and being more reliable than other scales with the same number of items. It may also be due to it showing, not only the person's response to each item

but also the strength of their feeling (Noble and Watson, 2007). Robson (1993) suggested participants enjoy completing Likert scales because they appear interesting, which means it is less likely that a participant will answer automatically, and instead each option will be considered before a response is made. Another advantage is each item being of equal value to that it is the participants' responses that are scored rather than the items themselves (Bucci, 2003).

Another aspect to consider when formulating the questionnaire was readability, as this has been found to affect reliability, (Baker, 1993). Closed ended questions are easy to formulate and analyse, and are also easy and fast for the respondents, (Rubin, 2006).

The questionnaire also included one separate additional question asking participants to report their own experience of anorexia; clinical, personal or social. For ethical reasons, this question also offered the option of, 'prefer not to say.' Participants were also asked to report their age and gender.

Procedure and Ethical Considerations

Participants were recruited via opportunity sampling within Manchester Metropolitan University; student nurses from the Elizabeth Gaskell campus and non-healthcare students from any one of the MMU campuses. This method was used as it means, 'Large numbers of participants can be obtained relatively quickly and easily' (Russell and Roberts, 2001:17). Other than being a MMU student, there were no other criteria participants were required to meet to take part in the study; both male and female students over the age of eighteen were used and there was no upper age limit.

Before taking part in the study participants were informed that data collected from them would be seen within the University, but as no personal details would be collected from them, they would remain anonymous. This information was also included as part of the instructions at the start of the questionnaire (Appendix 1). Participants were not required to sign a consent form, and instead were made aware that they were providing consent by agreeing to take part in the study, as this ensured their anonymity. Ethical issues are discussed in more detail on the ECF and AEF forms for ethics approval, (Appendix 2 and 3).

Participants were then administered the questionnaire (Appendix 1) to which they responded on a 5-point scale; very true, somewhat true, neither true nor untrue, somewhat untrue and very untrue. Lawtown and Herzog (1989) argue the inclusion of a neutral point results in the best response distributions; they also found five-point scales were best liked amongst participants and resulted in the least amount of items for which there was no response. Upon completing the questionnaire participants received a debrief slip (Appendix 1) and thanked for taking part.

Statistical Analyses

To establish each participant's score their responses to each statement were added together; very true=1, untrue=2, neither true nor untrue=3, true=4 and very true=5 for each group of statements. As each group had 11 statements, participants could score a minimum of 11 and a maximum of 55. A high score for statements generated from the DSM and research literature, and a low score for statements generated from common misconceptions indicates a good understanding of anorexia.

This data was then entered into SPSS for analysis. Cronbach's alpha coefficient was firstly conducted to establish the internal reliability of each group of statements. A 2x3 mixed ANOVA was then used to establish student nurses' and non-healthcare students' understanding of anorexia; Creighton (2007) highlights the real advantage of the ANOVA to be that it allows two or more samples to be analysed at once. The independent variables were the groups of statements generated from three different sources; the DSM, research literature and common misconceptions, and whether the participant was a student nurse or a non-healthcare student.

A 2x3 ANOVA also allows for an interaction effect to be established; if the effect of one variable differs depending on the level of another variable, there is an interaction effect, (Lane, n.d.). The dependent variable was the students' score for of the 33 items.

Results

Reliability

Table 1

Cronbach's alpha for each group of questionnaire items

	Cronbach's Alpha
DSM	.89
Research	.87
Misconceptions	.88

Cronbach's alpha coefficient revealed high internal reliability for each group of statements; an internal reliability between 0.80 and 0.90 is thought to be ideal, (Thomas et al. 2004).

Descriptive Statistics

Table 2

Overall, student nurses' and non healthcare students' means and standard deviations of scores for statements generated from DSM, Research and Misconceptions.

	Overall N=100		Student Nurse N=50		Non-healthcare student N=50	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
DSM	43.49	5.56	44.28	5.26	42.70	5.79
Research	43.12	4.54	45.20	3.58	41.01	4.48
Misconceptions	28.27	6.20	25.66	5.98	30.88	5.30
Overall			38.38		38.21	

Descriptive statistics revealed that for statements generated from the DSM, non-healthcare students had a lower understanding ($M = 42.70$, $SD = 5.79$) compared to that of student nurses ($M = 44.28$, $SD = 5.26$). For statements generated from research literature, non-healthcare students again scored lower ($M = 41.04$, $SD = 4.48$) than student nurses ($M = 45.20$, $SD = 3.58$). Non-healthcare students thought more statements generated from common misconceptions to be true ($M = 30.88$, $SD = 5.30$) than student nurses ($M = 25.66$, $SD = 5.98$). Non-healthcare students therefore found these false statements to be truer than student nurses, meaning student nurses had a superior understanding.

Without accounting for between-subjects variables (student type), students' scores were similar for items generated from the DSM, ($M = 43.49$, $SD = 5.56$) and research literature, ($M = 43.12$, $SD = 4.54$) compared to a significantly lower score for items generated from misconceptions, ($M = 28.27$, $SD = 6.20$). Without accounting for within-subjects variables (source), student nurses scored similarly overall, ($M = 38.38$) to non-healthcare students, ($M = 38.21$).

Inferential Statistics

A 2x3 ANOVA was conducted to establish whether there was a main effect of student type (student nurse or non-healthcare student) on participants' understanding of anorexia, a main effect of source (DSM, research or misconceptions) on understanding and an interaction effect between student type and source.

Mauchly's test of sphericity (Appendix 5) revealed significant differences between the variables, $p < .001$; as the significance level is $p < .05$ then the assumption of sphericity has been violated and the Greenhouse-Geisser correction must be observed, (Salkind, 2010).

Within-Subjects Effects

Table 3

Within subject effects; the effect of source on participants' score

	df	F	Significance Level
Source	1.24	265.95	($p < .000$)

A significant main effect of source was observed, $F(1.24, 265.95) = p < .001$. In other words, there was a significant difference between participants' scores for each the categories of statements generated from three different sources.

Between-Subjects Effects

Table 4

Between subject effects; the effect of student type on participants' scores

	df	F	Significance Level
Student	1	.101	($p > .05$)

No significant main effect of student was observed, $F(1, .101) = p > .05$. In other words, participants' scores for each group of statements did not depend upon whether the participant was a student nurse or non-healthcare student.

Interaction Effects

Table 5

Interaction effect between source and student type

	df	F	Significance Level
Source*student	1.24	20.71	($p < .000$)

A significant interaction of source and student was observed, $F(1.24, 20.71) = p < .001$, therefore whether the participant was a student nurse or a non-healthcare student had a significant effect on their scores for the three groups of statements.

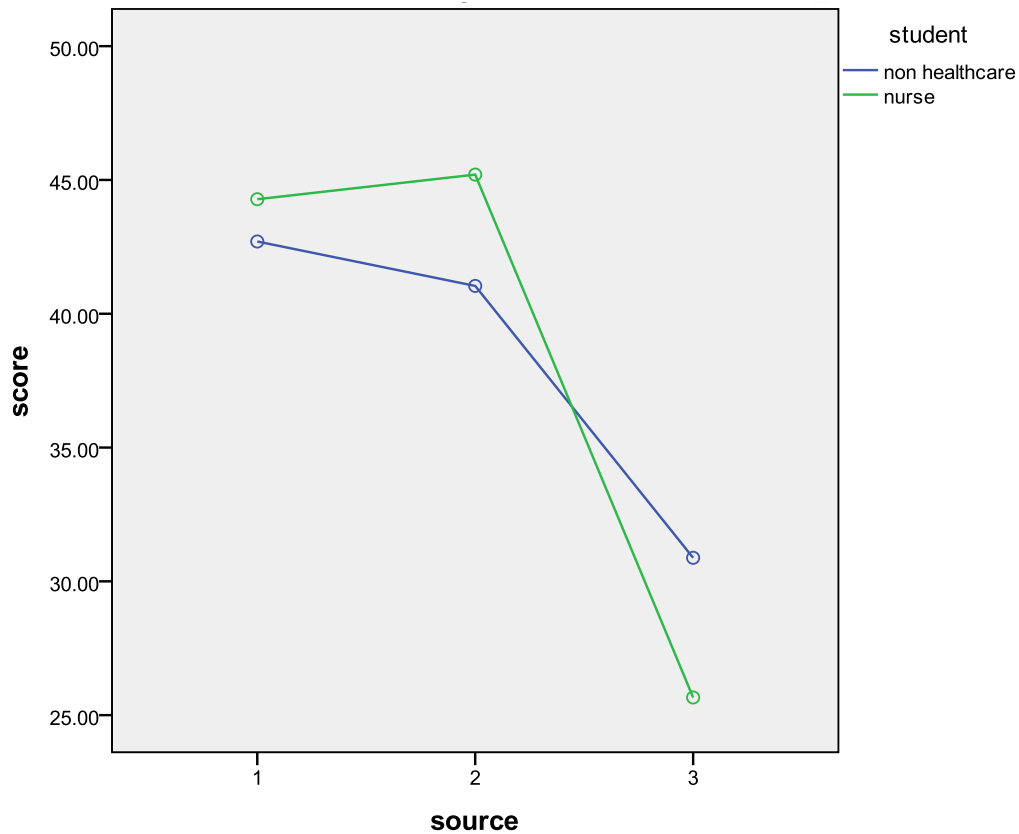


Figure 1: Mean scores of student nurses and non-healthcare students for statements generated from each source

Post Hoc Tests

As there was a significant main effect of source, a post hoc test was conducted in order to establish where exactly the significance lies between the three levels. A Tukey's HSF post hoc test was conducted; this method provides true correction of alpha slippage, without sacrificing statistical power, (Stevens, 1999). Alpha slippage can occur when testing large numbers of variables or subjects, (Sechrest & Figueredo, 1993).

Table 6**Post hoc test pairwise comparisons**

Comparisons	Significance Level
DSM-Research	($p > .05$)
DSM- Misconceptions	($p < .000$)
Research-DSM	($p > .05$)
Research- Misconceptions	($p < .000$)
Misconceptions- DSM	($p < .000$)
Misconceptions- Research	($p < .000$)

Six pairwise comparisons were made. A significant difference between scores for statements generated from the DSM and misconceptions, $p < .001$, was found. There was no significant difference between scores for statements generated from the DSM and research, $p > .05$. A significant difference between scores was also observed between statements generated from research and misconceptions, $p < .001$. From this it is clear that within the three levels of source, the significance lies between statements generated from misconceptions and those generated from the DSM-IV (2000) and research literature.

Experience of Anorexia

Participants were also asked to report their own experiences of anorexia. Of non-healthcare students (N=50), 0 reported personal experience of anorexia, 6 reported social experience and 1 reported clinical experience. Of student nurses (N=50), 0 reported personal experience, 4 reported social experience and 7 reported clinical experience.

Table 7

Social, clinical and no experience of anorexia students' means and standard deviations of scores for statements generated from DSM, Research and Misconceptions

	Social experience		Clinical experience		No experience	
	N=10 <i>M</i>	<i>SD</i>	N=8 <i>M</i>	<i>SD</i>	N=82 <i>M</i>	<i>SD</i>
DSM	50.40	3.86	49.00	4.21	42.11	4.88
Research	46.10	4.07	47.13	3.40	42.37	4.36
Misconception	22.10	3.35	19.38	4.53	29.89	5.37

Students that had social experience of anorexia had superior understanding for items generated from each of the three sources, giving them higher scores for DSM statements ($M = 50.40$, $SD = 3.86$) and research statements ($M = 46.10$, $SD = 4.07$) and lower scores for statements generated from misconceptions, ($M = 22.10$, $SD = 3.35$). The same was true for students with clinical experience of anorexia, scoring more highly to items generated from the DSM, ($M = 49.00$, $SD = 4.21$) and research literature, ($M = 47.13$, $SD = 3.40$) and lower to items based on misconceptions, ($M = 19.38$, $SD = 4.53$) than students that reported no experience of anorexia, whose scores for each category of statements; DSM ($M = 42.11$, $SD = 4.88$), research ($M = 42.37$, $SD = 4.36$), misconceptions ($M = 29.89$, $SD = 5.37$) indicated lower understanding of anorexia than the sample population as a whole.

Table 8

Mean scores for by gender and age for statements generated from each of the 3 sources

	Male (N=17) <i>M</i>	Female (N=83) <i>M</i>	18-21 (N=73) <i>M</i>	22-25 (N=19) <i>M</i>	26-29 (N=5) <i>M</i>	30+ (N=3) <i>M</i>
DSM	43.00	43.60	42.58	46.37	46.20	43.00
Research	40.00	43.76	42.68	45.11	43.60	40.67
Misconceptions	30.94	27.72	28.70	27.47	25.00	28.33

Gender differences showed female participants indicated an enhanced understanding of anorexia based on their score for statements generated from the DSM, ($M = 43.60$) and research literature, (43.76). From the males' mean scores for

these sources it can be seen that their understanding was slightly impaired compared to females; DSM, (M = 43.00), research (40.00). Misconceptions of anorexia were also better understood by females, (M = 27.72) than males, (M = 30.94) who scored more highly on these items. 22-25 year olds were found to have superior understanding of statements generated from both the DSM, (M = 46.37) and research literature, (M = 45.11). 26-29 year olds had superior understanding of misconceptions, (M = 25.00) as they obtained the lowest score for statements generated from this source.

Furthermore, the analysis of individual questionnaire items, revealed there to be particular statements that generated surprisingly low or high scores that are worth highlighting.

Table 9

Mean scores for student nurses and non-healthcare students of statements that generated noteworthy scores.

	Student Nurse N=50 <i>M</i>	Non healthcare N=50 <i>M</i>	Overall N=100 <i>M</i>
If an individual weighs less than 85% what is expected for their height they are considered anorexic	2.80	2.82	2.81
Anorexia sufferers are more likely to suffer from depression and anxiety	4.58	4.56	4.57
Anorexia is mostly caused by unhealthy and unrealistic images in the media	4.00	4.22	4.11
Anorexia can lead to severe physical problems and death if allowed to continue	4.14	3.88	4.01
Anorexia results in death in around 10% of cases	2.14	1.98	2.06
Death is unlikely unless the patient is severely malnourished	4.16	4.12	4.14

The true statement, 'If an individual weighs less than 85% what is expected for their height they are considered anorexic' generated surprisingly low scores for both student nurses (M = 2.80) and non-healthcare students, (M = 2.82). The false statement, 'Anorexia sufferers are more likely to suffer from depression and anxiety' was the best understood statement by both student nurses, (M = 4.58) and non-

healthcare students, ($M = 4.56$). Both groups of students had low understanding of the statement, 'Anorexia is mostly caused by unhealthy and unrealistic images in the media', student nurses, ($M=4.00$) and non-healthcare students, ($M=4.22$) as high scores were generated for this item. Although student nurses, ($M = 4.14$) and non-healthcare students, ($M = 3.88$) produced relatively high scores for the true statement, 'Anorexia can lead to severe physical problems and death if allowed to continue' , both groups of students; student nurses, ($M = 2.14$), non-healthcare students, ($M = 1.98$) had low understanding of the true statement, 'Anorexia results in death in around 10% of cases', as well as of the false statement, 'Death is unlikely unless the patient is severely malnourished', student nurses, ($M = 1.6$), non-healthcare students, ($M = 4.12$) producing high scores for this statement.

Discussion

Main Findings

The aim of this study was to establish student nurses and non-healthcare students' understanding of anorexia. Understanding was tested based on three categories of information; the DSM-IV (2000) criteria for diagnosis of anorexia, findings based on research literature and popular misconceptions.

Within-subjects effects revealed a significant difference in students' scores for the categories of statements generated from the three different sources. Students' scores for questionnaire items based on the DSM, including statements concerning the aetiology of anorexia were high, indicating a good understanding; this disputes research by Hoffman (2011) who reported students to believe disordered eating is a vanity issue.

Students' scores for questionnaire items based on research literature also indicated a fairly good understanding of anorexia; in particular, both groups of students showed high understanding for the statement, 'Anorexia sufferers are more likely to suffer from depression and anxiety' based on this finding by Carmen (2004).

Questionnaire items based on misconceptions were somewhat understood, however both groups of students left room for much improvement for this group of statements; Bulik et al. (2008) claimed false information about anorexia nervosa disseminated in pop culture influenced students' understanding when made available to them, and this study seems to provide support for this.

Between-subjects effects found student nurses and non-healthcare students to have similar understanding of anorexia, as an insignificant main effect of student type was observed. This provides support for research by Lay (1998) who found laypeople and healthcare professionals interpret anorexia in a similar fashion.

However, a significant interaction effect between source and student type revealed that student nurses had slightly improved understanding of anorexia for each of the three groups of statements. This is promising as researchers argue it is crucial for healthcare professionals to have a high level of understanding of anorexia, (Ramjan, 2004). Student nurses were found to have enhanced understanding of questionnaire items generated from both the DSM-IV (2000) and research literature. They were

also found to be less influenced by misconceptions of anorexia, an important finding as Ramjan (2004) argues it is vital that healthcare students understand the facts about anorexia, and that their views are not affected by common myths and misconceptions. It has also been found that misconceptions about anorexia can cause health practitioners to become frightened by the problem, which leads to ignorance and the development of theories and treatment models based on practitioners' prejudices rather than the client's needs, (Orbach, 1985 cited in Emmett, 1986).

Experience of Anorexia

This study also aimed to establish whether students' understanding of anorexia was affected by their own experiences of the disease; those students that reported social experience of anorexia showed greater understanding than students that reported no experience. Previous research has implicated this to be a positive finding as anorexia sufferers that have support have been found to have a better prognosis; family therapy is more effective than individual therapy, (Treasure, 2011).

Students that reported clinical experience of anorexia also showed a greater understanding than those with no experience; a high level of understanding is of upmost importance in a clinical setting, where it is essential for developing the therapeutic relationship between nurse and patient, (Ramjan, 2004).

Females were found to have slightly higher understanding of anorexia than males; this could offer an explanation for research by Winfield (2010) who found females to attribute less blame to eating disorder sufferers than males; as increased understanding influences the way in which anorexia is perceived, (Bulik et al. 2008).

Other findings

Although, not part of the research aims, there were some unexpected findings based on individual questionnaire items. The DSM-IV (2000) statement, 'If an individual weighs less than 85% what it expected for their height they are considered anorexic' generated surprisingly low scores, indicating poor understanding as compared to other statements generated from this source. The inclusion of this standard in the DSM has been criticised, as height and weight gain varies greatly in normal puberty, (Golden et al. 2003).

The false statement, 'Anorexia is mostly caused by unhealthy and unrealistic images in the media' also generated high scores indicating a poor understanding, this provides support for Tartakovsky et al. (2010) who argued that the media making someone vulnerable to anorexia or bulimia is one of the biggest misconceptions about eating disorders.

Statements concerning mortality in anorexia were not well understood. The scores for the DSM-IV (2000) statement, 'Anorexia can lead to severe physical problems and death if allowed to continue' indicated relatively good understanding, however, the statements, 'Anorexia results in death in around 10% of cases', and 'Death is unlikely unless the patient is severely malnourished' revealed poor understanding regarding the seriousness of the disease. This maintains research by Holliday (2005) who found laypeople believed anorexia to have a more positive prognosis than anorexia sufferers themselves. These findings also provide support for those by

Pompoli et al. (2006, cited in Swain, 2006) who reported suicide as a major cause of death among individuals with anorexia to be largely underestimated.

Limitations and ideas for future research

The sample used was predominantly female, and the vast majority of participants were under the age of 30. A wider sample could give the findings increased validity as they would be more representative of the general population. The research could also be extended with the inclusion of more statements regarding the aetiology of anorexia, as research highlights this to be of utmost importance for accurate diagnosis, which leads to successful treatment, (Maine et al. 2009). The inclusion of more statements regarding participants' understanding of male anorexia would also be useful as Dinah (2011) found a lack of understanding surrounding, and stigmas associated with male anorexia in Ireland.

It may be worthwhile if the research were conducted with a larger sample of students with social or clinical experience of anorexia, as in this study this sample was small, meaning the findings could be easily disputed. It would also be interesting to conduct the research using healthcare professionals as well as student nurses to establish the extent to which understanding of anorexia improves. Similar research could also be conducted with regards to other eating disorders such as bulimia, as misconceptions and misunderstanding have also been found for this disease, (Crilly, 2012).

Conclusions

Although students' level of understanding was better than expected, as indicated by previous research, there is still much room for improvement. Samour et al. (1999) indicates the importance of the general population being able to spot the warning signs of anorexia, as this would mean being able to get friends and family into treatment earlier and earlier intervention means better prognosis. Furthermore, Treasure (2011) suggested that unless effective treatment is given within the first 3 years of illness onset then the outcome is poor.

Overall, this study provides support for and disputes previous research as student nurses and non-healthcare students indicated relatively good understanding of anorexia, however findings showed that of statements generated from the DSM-IV (2000), statements generated from research literature and statements generated from popular misconceptions, none at all were fully understood. Misunderstanding regarding any aspect of anorexia has been found to have a negative impact on diagnosis and treatment, so it is essential for both healthcare professionals and the public to understand as much as possible about the disease.

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