

The use of humour in medical education: students' perspective¹

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Abstract

In early 20th century, Sir William Osler supported the use of humour as an efficacious tool in medical education, which continues to be used today. Despite the abundance of literature delineating this important role, it is often overlooked among medical students. A descriptive cross-sectional study was planned where a total of 295 medical students from the pre-clerkship and clerkship phases at Beirut Arab University Faculty of Medicine were included in the study.

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A questionnaire was distributed among the participants assessing their perception on the use of humour in medical education. Data were collected, entered, and analysed on SPSS software version 23.1. Results with p-value < 0.05 were considered statistically significant. The majority of participants agreed to the implementation of humour in medical education. They supported different forms of humour to be used, and considered mockery, sarcasm, the instructor appearing as a performer, and humour that is irrelevant to the course as inappropriate. Inappropriate humour distracts attention and disrupts the formal atmosphere. Our findings suggest that medical students' opinions on using humour in medical education are supportive. The findings of this study might be of benefit to assist teachers in using humour to improve the attendance and interest of the students in the class and create an environment conducive to optimal student learning.

Keywords: humour, medical education, student.

1. Introduction

Over the past few years, medical education has drastically evolved (Harden & Crosby 2000). Core curricula with electives have been adapted, and there was more advancement in systematic curriculum planning (Harden & Davis 1995). Humour has been advocated as part of this evolution. The use of humour in medical education was supported by Sir William Osler since early 20th century (Osler 1920) and continues to be used today in various instructional settings (Bieg & Dresel 2018).

Laughter is part of normal human behaviour (Savage et al. 2017). It is a universal language well known to all humans. It is used by medical instructors as a tool to enhance education, promote relationships formation, and strengthen human connections (Sauter et al., 2010).

Currently, humour use in education is recommended (Fterniati et al. 2015). Humour may not directly induce learning; however, it emphasises attention, maintains it, and helps produce a more friendly and productive learning environment (Banas et al. 2011; Gironzetti 2019). Indeed, as it entertains, it stimulates interest in learning and helps in establishing an excellent classroom atmosphere, which promotes effective education (Sheldon James & Jacob 2016). Thus, when appropriate humour is used, students will become motivated and more encouraged to participate in the educational process (Wanzer et al. 2010; Goodboy et al. 2015). Moreover, it is well known that humour influences many aspects of the human well-being due to its positive effects on body physiology, immunity status, and psychological behaviour (Piemonte 2015; Riesch 2015; de Brito et al. 2016). For instance, humour is known to reduce pain as it stimulates the release of endorphins (Berk 2001). It also improves respiration and blood circulation (Fitzpatrick 2010). The psychological advantages include decreased anxiety and tension and stress reduction by reducing serum levels of stress hormones, including cortisol and epinephrine (Berk 2000; Teslow 1995).

One additional beneficial effect of humour is memory enhancement (Schmidt & Williams 2001; Kellaris & Cline 2007). Humour can act as a strong recall key, since humorous information is easier to remember by establishing a correlation between the comic ideas and the learning objectives (Atir 2010; Carlson 2011).

It has been argued, however, that not all types of humour are appropriate for education. Fun should be related to the course material to enhance learning (Banas et al. 2011). Negative forms of humour, such as derogatory remarks, mockery, sarcasm, and ridicule, which aim to embarrass, discourage, or humiliate students are inappropriate in teaching (Berk 2007). Humour that is culturally inappropriate, disrespectful, silly, unpleasant, or insulting causes offense and will lead to a negative influence that will be counterproductive to the learning process, which

reduces student motivation and concentration (Penson et al. 2005; Wanzer et al. 2010). A stressful environment based on fear and pressure caused by absurd humour is not constructive to either learning or effective academic performance (Berk 2007).

Available literature shows that humour forms that are based on developing people up rather than intimidating them, such as constructive criticism and harmless jokes, should be implemented into the medical curriculum (Gostick & Christopher 2008). Caution must be used to apply appropriate humour and set limits so as not to cause offense. Most importantly, the use of humour must be well-timed (Penson et al. 2005).

Despite the abundance of literature delineating the importance of the use of humour in medical education, it is often overlooked among medical students (Valentine & Gabbard 2014). Furthermore, even though more evidence on the importance of humour in medical education is still needed, it will always be used in medical teaching by those who agree upon the fact that fun is an essential tool in teaching while waiting for further supportive evidence (Narula et al. 2011). With the role of humour being delineated by many studies as an effective teaching method, and with the lack of enough recognition of that role in medical education, this study aims to explore the perspective of medical students at Beirut Arab University (BAU) towards the use of humour in medical education.

2. Materials and methods

2.1. Study design and setting

This is a descriptive cross-sectional study conducted between February 2020 and April 2020 at the Faculty of Medicine at Beirut Arab University. Ethical clearance was approved by the Institutional Review Board (IRB) (Approval code: 2020-H-0100-M-R-0388).

2.2. Participants

1. All students at the faculty of medicine, a total of 561 students, were invited to participate in the study. A total of 295 (52.6%) medical students actually participated. Informed consent was obtained from all the participants before filling the questionnaire. Participants were notified about the aims of the research and that they had the right to withdraw at any time during the study.

2.3. Questionnaire

Following a thorough literature review related to the use of humour in medical education, a modified version of the questionnaire established by Liu et al. (2017) was developed. A pilot study was conducted on a total of 12 medical students to assess the suitability and clearness of the questions. Feedback from the students was used to develop the final version of the questionnaire.

Data collection was done via convenience sampling. It first started by filling paper-based surveys. However, due to the coronavirus disease 2019 (COVID-19) pandemic and the national lockdown in February 2020, the recruitment of participants had to be carried online through LimeSurvey between March 2020 and April 2020. Participants who already completed the paper-based survey were asked not to fill the online form. Anonymity was ensured throughout data collection.

Each questionnaire was divided into two main sections. The first section consisted of questions regarding participants' socio-demographic characteristics. It included

information regarding their age, gender, marital status, nationality, current place of living, academic years divided into pre-clerkship and clerkship phases with pre-clerkship being the phase of basic medical sciences (years 1-3) and clerkship phase being the one where clinical medical sciences are taught (years 4-6). In addition, participants were asked about their cumulative grade point average (CGPA) which is a 4-point scale. A CGPA < 3 was considered poor, and a CGPA > 3 was considered good.

The second section focused on the use of humour in medical education. It involved questions regarding the “Proportion of Medical Curriculum during Which Medical Students Felt Bored”, and their “Perception towards Using Humour by Medical Teachers”. Furthermore, “The Benefits of the Use of Humour in Medical Education” section modulated in the following 5 categories: Relaxed Classroom Atmosphere, Enjoyable and Positive Learning Experience, Improving Student-Instructor Rapport, Focus Students’ Attention, and Remember More Information, were also explored. Next, “The Preferred Period of the Day to Include Humour in Teaching Sessions”, and “The Frequency of Humour Usage by Teachers in a Theoretical Course, Clinical Session or Clinical Round” were inquired. A 5-point Likert scale regarding “The Preferred Form of Humour”, subdivided based on its most common forms, was then included. It comprised of the following: Cartoons or Videos (considered as one category both being a type of animation), Opening Jokes, Planned, Non-spontaneous Humour, Questions or Multiple-choice Questions, Quotations or Analogies (citations), Skits (Comedy Sketch), and Spontaneous Humour. The rating was assessed with one being least important and five being most important. Finally, “The Students’ Perception of Inappropriate Humour and Its Disadvantages” was inspected.

The questionnaire had two quantitative variables, which are “Age” and “Preferred Form of Humour”. They were dealt with as continuous variables to which the mean and the standard deviation was calculated for each.

2.4. Statistical methods

Data were entered into the Statistical Package of Social Science (SPSS version 23.1). Descriptive statistics were reported by calculating frequencies and percentages for categorical variables, and the mean and standard deviation for continuous variables. Chi-square test was used to verify an association between the categorical variables. In contrast, the independent samples t-test was used to compare the means of preferred forms of humour between the academic phases. Results with p-value < 0.05 were considered to be statistically significant.

3. Results

3.1. Participants’ socio-demographic characteristics

A total of 561 medical students were invited to participate in the study of whom 295 agreed to, yielding a response rate of 52.6%. Table 1 represents the socio-demographic characteristics of the participants. Their mean age was found to be 20.98 ± 2.013 . One hundred seventy-five (59.3%) of the participants were females, 291 (98.6%) were single, 282 (95.6%) were of Lebanese nationality, 214 (72.5%) were living at their parents’ house, 156 (52.9%) were from the pre-clerkship academic phase, and a similar percentage had a cumulative grade point average (CGPA) above 3.

Table 1. Socio-demographic characteristics of the participants (N=295)

Demographic information	Mean ± standard deviation
Age*	20.98 ± 2.0313
	N (%)
Gender	
Male	120 (40.7)
Female	175 (59.3)
Marital Status	
Single	291 (98.6)
Married	4 (1.4)
Nationality	
Lebanese	282 (95.6)
Non-Lebanese	13 (4.4)
Current place of living	
Parents' house	214 (72.5)
Dormitory/Shared apartment	67 (22.7)
Others	14 (4.7)
Academic phase	
Pre-clerkship	156 (52.9)
Clerkship	139 (47.1)
Cumulative GPA*	
< 3	138 (46.9)
> 3	156 (53.1)

*Each variable had one missing data

3.2. Humour in medical education

When participants were asked about their perception regarding the implementation of humour in medical education, 246 (83.4%) strongly agreed or agreed, 32 (10.8%) were neutral about it, and 17 (5.8%) disagreed or strongly disagreed. Table 2 shows the association between participants' views on the implementation of humour in medical teaching and their gender, academic phase, and CGPA. However, none of these were found to be significantly associated with the participants' points of view (p -value > 0.05).

Table 2. The association between participants' view on usage of humour in medical teaching and their gender, academic phase, and cumulative GPA (N=295)

Demographic information	Use of humour in medical teaching			p-value
	Strongly agree/Agree* N (%)	Neutral N (%)	Disagree/ Strongly disagree N (%)	
Gender				
Male	95 (79.2)	18 (15)	7 (5.8)	0.161
Female	151 (86.3)	14 (8)	10 (5.7)	
Academic phase				
Pre-clerkship	129 (82.7)	16 (10.3)	11 (7.1)	0.583
Clerkship	117 (84.2)	16 (11.5)	6 (4.3)	
Cumulative GPA**				
< 3	112 (81.2)	15 (10.9)	11 (8)	0.305
> 3	134 (85.9)	16 (10.3)	6 (3.8)	

*A 5-point Likert scale was used first, then reorganized into 3 categories

**Variable had one missing data

3.3. Benefits of humour in medical education

Table 3 shows the association between participants' perceptions of the benefits of the use of humour in medical education and their academic phase and CGPA. Only the benefit of improving student-instructor rapport was found to be significantly associated with the medical students' educational period ($X^2 [1, N = 278] = 4.015, p = 0.045$) with those in the clerkship phase (66.9%) agreeing that humour does improve the rapport compared to pre-clerkship phase students (55.2%).

Table 3. The association between participants' perception of benefits of humour in medical education and their academic phase and cumulative GPA*

Benefits of humour	Relaxed classroom atmosphere N (%)	p-value	Enjoyable and positive learning experience N (%)	p-value	Improving student-instructor rapport N (%)	p-value	Focus students' attention N (%)	p-value	Remember more information N (%)	p-value
Academic phase										
Pre-clerkship	113 (77.9)	0.166	125 (86.2)	0.768	80 (55.2)	0.045	68 (46.9)	0.521	109 (75.2)	0.399
Clerkship	94 (70.7)		113 (85)		89 (66.9)		67 (50.8)		94 (70.7)	
Cumulative GPA										
< 3	95 (74.8)	0.979	109 (85.8)	0.967	71 (55.9)	0.109	63 (50)	0.741	90 (70.9)	0.478

> 3	112 (74.7)		129 (86)		98 (65.3)		72 (48)		112 (74.7)	
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*Only those who answered “strongly agree/agree” or “neutral” on the question regarding the usage of humour in medical education were included (n= 278)

3.4. Participants’ proportion of boredom in medical school and preferred timing for implementation of humour

When participants were asked about the proportion of the medical curriculum during which they felt bored, 178 (60.4%) stated that they often or sometimes felt bored. However, only 6 (2%) answered never feeling bored. When asked about their preferred period of the day to use humour, 198 (71.2%) medical students supported its use in the afternoon, whereas 177 (63.7%) preferred its use in the noon sessions. As for the morning period, 126 (45.3%) considered it a better time to use humour during teaching (Table 4).

Table 4. Participants’ proportion of boredom in medical school and preferred timing for implementation of humour (N= 295)

Proportion of boredom	Frequency (%)
Always	9 (3.1)
Usually	38 (12.9)
Often	63 (21.4)
Sometimes	115 (39)
Seldom	50 (16.9)
Rarely	14 (4.7)
Never	6 (2)
Day period	
	Frequency (%)
Morning	126 (45.3)
Noon	177 (63.7)
Afternoon	198 (71.2)

3.5. Participants’ preferred frequency for application of humour during teaching

As for the frequency of humour used during a theoretical course, 65 participants (23.4%) said that twice is appropriate, whereas 112 (40.3%) said three times, and 44 (15.8%) answered four times. Similarly, students were also asked about the frequency of humour used during a clinical round or a training session. Forty-eight of them (17.3%) responded that once would be appropriate, 82 (29.5%) answered twice, and 83 (29.9%) said three times (Table 5).

Table 5. Participants’ preferred frequency for application of humour during teaching (n= 278)

Frequency of humour application	Theoretical course (%)	Clinical round/ Training session (%)
Once	13 (4.7)	48 (17.3)
Twice	65 (23.4)	82 (29.5)
3 times	112 (40.3)	83 (29.9)

4 times	44 (15.8)	24 (8.6)
5 times	20 (7.2)	12 (4.3)
> 5 times	24 (8.6)	29 (10.4)

3.6. Scoring of different forms of humour among the academic phases

Table 6 presents the scores of different forms of humour that can be used in medical education according to the perception of medical students in the pre-clerkship and clerkship phases who strongly agree, agree or were neutral regarding usage of humour in medical education. Cartoons or videos ($p=0.039$), questions or multiple-choice-questions ($p=0.048$), quotations or analogies (citations) ($p=0.037$), and skits (comedy sketch) ($p=0.002$) showed a significant difference of scores between pre-clerkship and clerkship medical students, with those of pre-clerkship phase rating these forms of humour higher when compared to their seniors.

Table 6. Scoring of different forms of humours in medical education among the academic phases*

Forms of humour	Academic year		p-value
	Pre-clerkship (N=145)	Clerkship (N=133)	
Cartoons or videos			
Mean ± SD	2.69 ± 1.228	2.38 ± 1.3	0.039
Opening jokes			
Mean ± SD	3.23 ± 1.368	3.26 ± 1.302	0.825
Planned, non-spontaneous humour			
Mean ± SD	3.12 ± 1.377	2.98 ± 1.547	0.454
Questions or multiple-choice questions			
Mean ± SD	3.54 ± 1.286	3.23 ± 1.335	0.048
Quotations or analogies (citations)			
Mean ± SD	3.29 ± 1.241	2.97 ± 1.296	0.037
Skits (Comedy sketch)			
Mean ± SD	3.1 ± 1.398	2.61 ± 1.271	0.002
Spontaneous humour			
Mean ± SD	4.05 ± 1.157	4.17 ± 1.081	0.351

*Only those who answered “strongly agree/agree” or “neutral” on the question regarding the usage of humour in medical education were included (n= 278)

3.7. Inappropriate humour and its disadvantages

Two hundred twenty-two (75.3%) considered mockery (ridicule) to be an inappropriate form of humour, 149 (50.5%) thought that sarcasm is an improper form, 118 (40%) believed that the instructor appearing as a performer was inappropriate, and 114 (38.6%) felt that humour that is irrelevant to the course material should not be used. Among the disadvantages of the use of humour, 188 (63.7%) medical students believed that its application in teaching leads to spending time on irrelevant subjects, 164 (55.6%) thought that it distracts attention, 125 (42.4%) felt that it disrupts the formal atmosphere, and 105 (35.6%) believed that humour does not improve performance.

4. Discussion

The study results showed that the vast majority of participating students (83.4%) agreed to the implementation of humour in medical education. However, no association was found in regards to gender, academic phase, and CGPA. Students in the clerkship phase significantly agreed that humour improves student-instructor rapport. Although participants supported different forms of humour to be used in medical education, they considered mockery (ridicule), sarcasm, the instructor appearing as a performer, and humour that is irrelevant to the course material as inappropriate forms of humour that should not be used. As for the disadvantages of the use of inappropriate humour, medical students believed that it could lead to spending time on irrelevant subjects, distracts attention, disrupts the formal atmosphere, and does not improve performance.

The use of humour in medical education has been elaborated on by many studies, and it has been acknowledged as an essential teaching tool (Banas et al. 2011). This critical role, however, is often overlooked among medical students (Valentine & Gabbard 2014). So far, only a few studies have been conducted on the perspectives of medical students on the use of humour in medical education and its influences on this process. A study conducted by Narayanan et al. (2019) showed that lectures were repetitive and needed to be made more engaging. In this context, participants in the current study were asked about the proportion of the medical curriculum during which they felt bored, and the majority (60.4%) stated that they often or sometimes felt bored. However, only 2% answered never feeling bored. Humour helps in reducing boredom during sessions (Felson 1987; Gentilhomme 1992; Parrott 1994), as it can grab students' attention and maintain their interest in learning materials (McKeachie & Svinicki 2005; Davis & Arend 2012). Therefore, humour can be considered a way to help students become more attentive.

Additionally, the perception of the benefits of the implementation of humour in teaching based on the academic phase was studied. Students in their clerkship phase agreed that humour improves the student-instructor rapport compared to pre-clerkship phase students. Students prefer instructors who use humour in medical teaching (Fortson & Brown 1998). Moreover, the response to humour as smiling and laughter provides feedback to the teacher that the students were listening and are engaged with the presented topic material (Ziegler 1998). These findings support the notion that a fun environment provides a relaxing atmosphere that enhances interactive learning and reduces anxiety (Ziv 1976; Rosenberg 1989).

A previous study shows that self-reported sleepiness decreases during the day while performance increases (Goldstein et al. 2007). Nevertheless, afternoon sessions were the most popular choice when students were asked about their preferred period of the day to use humour. In other words, students may be more willing to accept humour as the day passes.

It is well known that theoretical lectures tend to be monotonous (Qiao et al. 2014). The students and teachers in another study supported that the use of humour created a relaxed classroom atmosphere, enhanced learning, and made it more enjoyable (Liu et al. 2017). The majority of participants in this study (83.4%) agreed that humour should be used three times during a theoretical course. However, when asked about the frequency of humour used during clinical rounds, opinions were dispersed. According to Parsons et al. (2011), students may see themselves as newcomers to the wards, and they feel reluctant to initiate humour because they worry it may be interpreted as derogatory at the expense of patients.

In another study, pre-clerkship medical students preferred the use of participatory methodologies in the lectures, including clinical cases, problem-based learning, computer simulations, and subject-relevant videos, stating that these helped reduce their study time and improved their memorisation (Gal et al. 2018; Nongmeikapam et al. 2019). Furthermore, the use of multiple-choice questions in a lecture will make it more interesting (Papanna et al. 2013). This is consistent with the results of the present study, where it was found that cartoons

or videos, questions or multiple-choice-questions, quotations or analogies (citations), and skits (comedy sketches) were important forms of humour selected by the participants as appropriate to use in medical education, with students of the pre-clerkship phase giving significantly higher scores to those when compared to their seniors.

Differentiation between appropriate and inappropriate humour in medical education is essential to become a qualified medical educator (Hecht et al. 2016). In this study, participants considered mockery (ridicule), sarcasm, the instructor appearing as a performer, and humour irrelevant to the course material as inappropriate forms of humour that should not be used. Results from other studies demonstrated that humour conveying aggressive, hostile, or sexual messages (Torok et al. 2004; Wanzer et al. 2009), negative interactions with instructors (Jayasuriya-Illesinghe et al. 2016), sarcasm, mockery (Liu et al. 2017), and humour which was irrelevant to the subject (Liu et al. 2017) are considered inappropriate. It is of note that the use of offensive humour should not be allowed in the classroom because it harms student learning (Banas et al. 2011; Narula et al. 2011).

Despite all the praise that humour received, many disapprove its usage in education and perceive its application in a negative manner (Tsukawaki et al. 2019). Among the disadvantages of the use of inappropriate humour, medical students believed that its application in teaching leads to spending time on irrelevant subjects, distracts attention, and disrupts the formal atmosphere. In addition, some believed that humour does not improve performance. Other studies added that it might reduce student motivation and concentration (Goodboy et al. 2015; Savage et al. 2017) and disrupt the learning environment, communication, trust, and self-esteem (Loomans & Kolberg 2002). Finally, the usage of humour in mocking students can be perceived as bullying or verbal abuse and makes the teacher appear disrespectful and unethical (Berk 2009; Baid & Lambert 2010).

5. Limitations

The present study provides insight on the usage of humour in medical education, however there are some limitations to be acknowledged. One of them is that it included medical students from a single medical school in Lebanon. Another important limitation is the possibility of recall bias since this study relies on the memory of the participants who may not have recalled information accurately when answering to the questions.

6. Conclusion

Our findings suggest that medical students' opinions on using humour in medical education are supportive, considering that humour provides a relaxing atmosphere that enhances interactive learning and reduces anxiety when it is used appropriately. The findings of this study might be of benefit to assist teachers in using humour to improve the attendance and interest of the students in the class and create an environment conducive to optimal student learning.

Despite those findings, there remains a need for a better understanding of the importance of the role humour can play in medical education, and further studies are needed to explore and compare its applicability in both pre-clerkship and clerkship educational phases, in addition to the need to study its suitability with the current worldwide shift to online education during the pandemic.

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