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Medals4Mettle: A Program to Enhance the Medical Student-Patient Bond

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Abstract

Introduction: Humanism is a necessary component of patient care. Medical schools are implementing strategies to educate students about humanism in medicine. The University of Louisville School of Medicine (ULSOM) encourages such practices through collaboration with Medals4Mettle (M4M), a non-profit organization that gives marathon medals to patients battling debilitating illnesses. The ULSOM's chapter matches students participating in the Kentucky Derby Half/Full Marathon with pediatric patients, allowing students to establish a relationship with their "running buddies" prior to gifting their medals on race day as an act of support and acknowledgement of their struggle. The goal of this study was to evaluate the ULSOM chapter and to create a replicable model for other institutions to employ.

Methods: We conducted a survey for current and previous student and patient/parent participants. Participants were asked to complete six 5-point Likert scaled questions anchored with "Strongly Disagree" to "Strongly Agree" and three open-ended questions. The surveys were analyzed using the Mann-Whitney U test for quantitative analysis and Pandit's variation of Glaser and Straus' constant comparison for qualitative analysis.

Results: Data was collected from 62 medical students and 21 patients or parents (49% and 33% response rate, respectively). Five of the scaled questions had mean scores above 4.0, revealing that the majority of participants would recommend the M4M program to others and that M4M helped students relate to their patient on a personal level. The qualitative analysis identified four themes among participants: M4M is a wonderful program, it provides a patient benefit, people want to re-participate, and it allows you to connect with others.

Discussion: Findings from the survey suggest the implementation of programs like M4M will promote the integration of humanistic practices into medical school curricula. In the future, we plan to pair medical students with the patients earlier to create a longer-lasting, more meaningful relationship prior to the race.

Introduction

Humanism is any thought or action in which human interests, values, and dignity predominate. It is a necessary component of medical education and crucial in becoming a successful and competent physician.^{1,2} Manifesting through altruism, integrity, respect for others and compassion, humanism becomes a key factor in caring for patients. It combines scientific knowledge and skills with the previously mentioned characteristics, bringing to the forefront the patient's values, concerns and autonomy.^{2,3} The humanistic relationship physicians can create by getting to know and understand the patient as a whole person allows for increased confidence in a physician.^{4,5,6} This relationship can provide the foundation for patients' trust, allowing for improvement in patient satisfaction and health care outcomes overall.^{3,7}

Unfortunately, medical schools tend to emphasize science and disease processes rather than the humanistic side of patient care, which makes medical students less prepared for this important aspect of healing.⁸ As medical students progress through their education, they may become overwhelmed with the heavy workload, strenuous demands, and cycle of lecture, study, test and repeat. This increases the likelihood of emotional suppression, detachment from patients, burnout and loss of empathy, which adversely affects the development of humanism.^{1,9,10}

To fill this void, it is necessary to identify methods that promote humanism and ways medical schools can incorporate them into their curricula. Getting to know patients and families is one of the most highly rated experiences in terms of encouraging humanism, and students yearn for this opportunity.^{2,8} Once developed, maintaining humanism requires constant attention. This has been attributed to several attitudes, such as the pricelessness in connecting with patients and the significance in realizing there is more to being a doctor than simply knowing the

disease.³ By incorporating such experiences into the lives of those in medical school, especially in their preclinical years, humanism can be salvaged and preserved, helping to create capable, compassionate physicians for the future.

The purpose of this study was to evaluate the Medals4Mettle (M4M) program that has been in existence since 2008 at the University of Louisville School of Medicine (ULSOM) and to create a replicable model for other schools to use and adapt as a tool for implementing humanism in a unique way. The ULSOM's Institutional Review board approved this study.

Program description

Medals4Mettle is a nonprofit organization founded in 2005 by Indiana surgeon, Steven Isenberg. After completing a marathon, Dr. Isenberg presented his medal to a hospitalized colleague who was battling cancer. He was inspired to start the program when he realized the impact of that simple act. By gifting finisher's medals to patients who are battling serious illnesses, the goal of M4M becomes apparent: to "celebrate and reward the individual and collective courage of all human beings."¹¹

The Kentucky Chapter of M4M at the University of Louisville School of Medicine (ULSOM) maintains the core values of M4M but takes it one step further. After signing up for the Kentucky Derby Marathon or Half-Marathon, medical students are matched with their "running buddies" who are patients at the University of Louisville Pediatric Cancer and Blood Disorders Clinic. The patient coordinators (nurses) display M4M flyers in the clinic, discuss the program with patients, and once the patient decides to participate, they fill out a HIPAA compliance form as well as a pamphlet with their contact information. Because patients undergoing treatment may not have appointments during the months of recruitment (December-

February), further recruitment is done via phone. Those that want to participate, including previous participants, sign up through the same process as above. Once the forms have been received, student coordinators preserve continuity by reassigning previous partners and randomly assign the remainder of patients to students.

Throughout the months of training for the marathon, students meet the patient and their family, and/or connect via email or phone. The goals are to learn more about the child and the illness they are dealing with, how the family and patient are coping with it, and most importantly, to foster a relationship that is beneficial for both parties. Patients can then attend the Kentucky Derby Marathon/Half Marathon and cheer on their partner or even cross the finish line with them. A ceremony is held after the race to acknowledge the patient and their families, and medical students reconnect with their buddies and hand off their medals to those who are running a much more difficult race of their own.

Total costs to the students for participating in the program include the registration fee for the race, which is \$75. There are no costs to the patient or their family. Additional expenses included: \$200 for M4M shirts, designed by students, to wear during the race, \$250 for refreshments at the ceremony, and \$75 for printing flyers and posters. The ceremony was held at a university facility, which was free of charge. Anonymous donors and school affiliated faculty and programs provided the \$525 for the additional funds.

Methods

Participants

Medical students and patients and/or the patient's family that participated in the ULSOM chapter of M4M from 2008 to 2014 were invited to participate in the study. The patient's family was invited to complete the survey as the ages of patients involved in the program ranged from several months to 18 years. A total of 126 students and 63 patients were approached to complete the surveys, including students and patients who had participated for several years in a row. Only one survey per participant could be completed regardless of the number of years they participated in the program.

Study design

Surveys were designed for both student and patient participants. They consisted of six 5-point Likert scaled questions anchored with "Strongly Disagree" to "Strongly Agree" and three open-ended questions. The surveys were original instruments based on the CDC model of program evaluation¹² designed to capture specific program information from various stakeholders. The six Likert scale questions were designed to provide quantitative data for description and comparison, and the three qualitative questions captured specific language. The questions were reciprocal to support comparison of student and patient data. (Refer to Figure 1 and Table 1)

Student and patient participants were invited to participate in the survey at the 2014 M4M ceremony held at the ULSOM Kornhauser Auditorium. Students who were unable to attend the ceremony and previous years' participants were emailed the survey, informed of the procedure and given one month to complete the survey online. Similarly, patient participants that could not

attend the ceremony and previous years' participants were mailed the survey, informed of the procedure and given one month to return the completed form to the Pediatric Cancer and Blood Disorders Clinic.

Data analysis

For the quantitative analysis, comparisons between students and parents on the Likert scale items were analyzed using the Mann-Whitney U test. Means and standard deviations were depicted in graphic form. All p-values were two-tailed. Statistical significance was set by convention at $p < 0.05$. SPSS Version 22.0 was used for the analysis.¹³

Qualitative analysis was completed using Pandit's variation of Glaser and Straus' constant comparison.¹⁴ Constant comparison, as developed by Glaser and Strauss, is useful with broad topic qualitative data sets; Pandit's simplified variation is useful for more focused comments such as in a specific program or event evaluation. Three reviewers coded open-ended data independently, then came to consensus on the final codes assigned. The frequency of each code by comment and by respondent group (students or parent) was calculated using Excel.

Results

Data was collected from 62 out of a potential 126 medical students (49%) and 21 out of a potential 63 patients or parents (33%). The bar chart of means and standard deviations (see Figure 1) depicts the similarities between the two groups. The Mann-Whitney U statistic showed that no significant differences were found between groups for any of the scaled questions. All mean scores were greater than 4.0, with the exception of the student response to the question regarding the program improving communication skills. Specifically, mean scores for student responses in order from top to bottom in Figure 1 were: 4.84, 4.70, 4.72, 4.59, 4.28 and 3.94. For

patient responses, mean scores were respectively: 4.81, 4.76, 4.67, 4.35, 4.48 and 4.05. Table 1 depicts the percentages of responses analyzed by code, question and group. Four predominant codes were found that showed more consistency among and between groups, as well as across questions, than any other codes. The term predominant indicates the code most often applied to responses to a specific question.

Discussion

The results of this study suggest that M4M is a successful program. It encourages humanism in medical students while connecting these students with patients battling severe illnesses through a unique and beneficial experience. Interestingly, while the study's results revealed a myriad of qualitative differences explaining why there was initial involvement in the program, there were striking quantitative similarities in both student and patient scaled responses. In evaluating these scaled responses, every study participant agreed or strongly agreed to recommend this program to others and that it was a good use of their time. In addition, the majority of respondents agreed or strongly agreed that M4M helped both students relate to their patients on a personal level and the patient relate to their healthcare team. This validates the comprehensive agreement on the positive impact that a program such as M4M can offer to patients, their families, and to those caring for children with devastating illnesses.

Several qualitative patterns emerged from the survey that were reflected in both patient and student responses. Four categorical themes in particular were consistent across responses to all questions for both groups. These included: a child/patient benefit in participating in the program, the program allowing for one to connect with others, the desire to participate in the program again, and that it was a wonderful program overall. As one parent commented:

Sarah loved meeting her runner and spending time with her. I feel like we really connected. It meant so much to us that a young student took time from their busy schedule to run this race and donate their medal to Sarah.

This parent's comments describe important qualities of medical humanism experienced by participating in the program. By utilizing his/her free time to train and participate in the race with the intent of donating their medal, the family was impacted by this tangible token of altruism representative of the student's goodwill and devotion. A second parent remarked:

It is amazing to see what it means to your child and your student as they get to know each other. The inspiration and the bond created are incredible.

This quote exemplifies the value in participating in the program from a parent's perspective. In addition to the patient and student gaining rapport with each other, it acknowledges the inspiration felt as a bystander. Students were equally as excited participating in the program:

I had no idea how fulfilling it would be to get to know the kids and also the real sense of solidarity that seems to be absent in my clinical rotations.

It's a wonderful use of your time in medical school and offers a chance to connect to a patient and to better explore the humanistic aspect of the medical field.

These responses reveal many of the benefits afforded to students that participated in M4M. As evidenced above, students appreciated the experience of forging a special relationship with a patient outside of the hospital or clinic. They acknowledged it as an opportunity to discover humanism in a creative manner. Moreover, they expressed the desire to participate in the future. By taking part in this program, the family and the medical student connected on a level not often experienced by students in their typical medical school curriculum. Through participation in M4M, such a paradigm of interaction can be integrated into the clinical setting, so that students will develop a heightened sense of caring and compassion that will manifest in their subsequent patient encounters.

Participating in the M4M program is a positive experience for all parties involved. To replicate the program it requires several components: 1) monetary support for the race entry fee, race shirts, and the ceremony 2) a community-based half or full marathon racing event 3) a venue to host the post race celebration/medal gifting 4) faculty time to provide mentorship 5) students to participate in the program, and 6) patients to participate in the program. In this chapter, pediatric patients with hematologic or oncologic illnesses are included, but other institutions could poll from patients with other chronic illnesses or the adult population. Some or all of these patients are accessible at medical schools and affiliated universities, proving to be an easily replicable model.

The only area of dissatisfaction with the program voiced by student participants was the desire to be paired with their running buddies at an earlier time. This would allow the pair to create a longer-lasting, more meaningful relationship prior to the race and ceremony. This further

establishes that medical students yearn for these opportunities. In the future, we hope to start the matching process sooner to further enhance the program.

The major limitations of this study were that it was conducted at a single institution and that it followed a single M4M event. The population was too small to conduct a pilot study of the survey, so the validity was based off of expert review, which was another limitation. In addition, survey response rates were 49% and 33% for students and patients/families, respectively. Students were given a paper survey at the ceremony and the opportunity to complete an online survey if they missed the ceremony or were participants from previous years that could not be present at the ceremony. Patients were able to complete paper surveys at the ceremony, yet previous participants were mailed the survey and required to return the completed survey to the clinic, which could have contributed to the lower response rate. Students are a stable population who can be contacted easily through the university email system. Patients, on the other hand, are in and out of the clinical setting and present more challenges. In spite of the imbalance in response rates, we made the conscious decision to include all student data. It is possible there is some response bias among participants, however not all responses were positive; there was an area of dissatisfaction indicating that respondents felt free to offer their opinion, which was to be paired earlier with their patient match. Another limitation is that the non-significant results between students and patients or parents could have occurred due to the small sample of the patient/parent participants. A post-hoc power analysis indicated the sample size of 62 medical students and 21 patients or parents would achieve 80% power to detect a significant difference between groups given a moderate to large effect size of 0.65 and a significance level of 0.05 using a two-sided Mann-Whitney U test.¹⁵ However, if smaller effect sizes between groups exist, statistical significance may not have been detected due to our small sample.

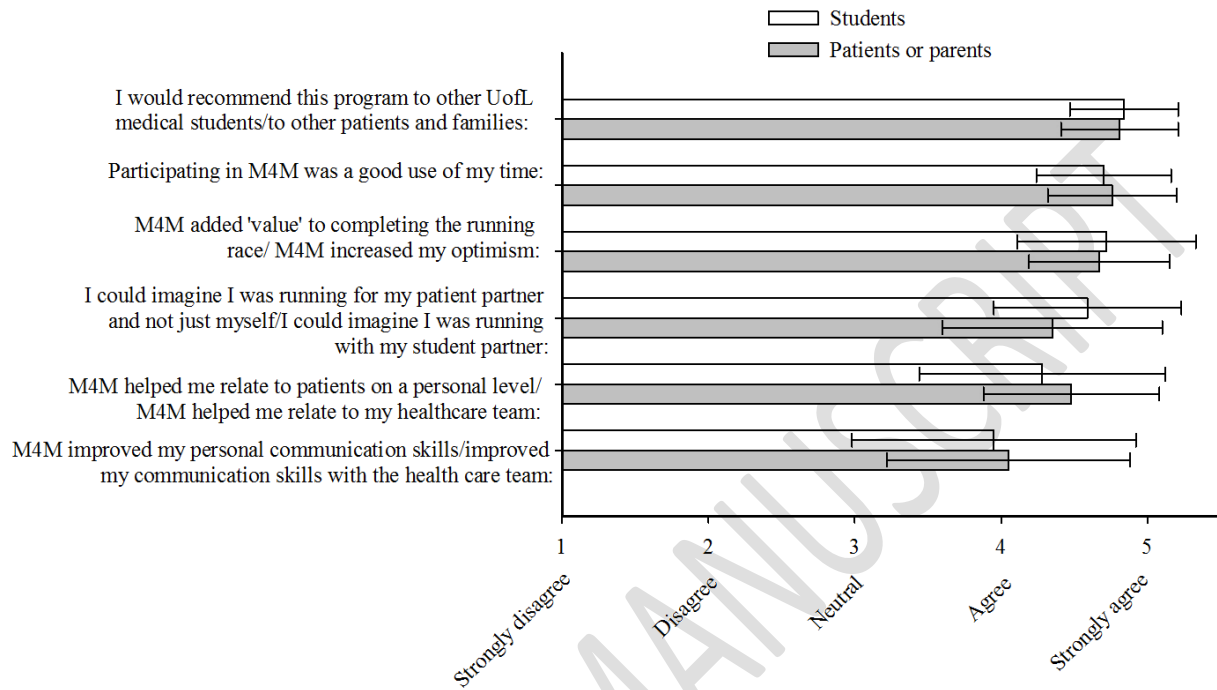
In summary, there are over 75 M4M chapters nationally and a growing presence internationally. To further solidify the bond between students and the patients they are running for, the M4M program at the ULSOM is a rewarding, efficacious program that requires a low time commitment. It is a replicable model, which can be easily implemented as a medical school activity at other institutions. Participants endorse personally benefitting from the experience and value the relationships made. To make an impact on the informal curriculum and overall clinical culture, strategies to incorporate experiences that infuse humanism in medicine early in the training of future physicians must be encouraged. The value-added emotional benefits gained by both the student runners and the patients can go a long way to instill compassion, respect and empathy in future physicians that will hopefully live with them throughout their years of practice. As other institutions hope to establish an M4M program, we would encourage them to take the suggestions for improvement (e.g. more time between patient assignment and the event).

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Figure 1. Comparison of scaled responses from students and patients or parents.



Error bars represent standard deviations

Table 1. Percentage* of comment type (code) by question and group

Code	Q1. Why did you participate in the M4M program?		Q2. How did the program meet your expectations?		Q3. What would you tell other medical students/patients about the program?	
	Student	Patient/ Parent	Student	Patient/ Parent	Student	Patient/ Parent
Personal benefit (e.g. get back into running, healthy)	38%	0%	1%	0%	7%	0%
Opportunity to give back (service)	13%	4%	0%	0%	9%	0%
Motivating and inspiring	11%	0%	3%	0%	0%	0%
Child/ patient benefit	22%	36%	1%	5%	11%	10%
Connect with others	7%	0%	13%	19%	11%	20%
Wanted to participate again	4%	9%	9%	29%	2%	20%
Adds value to running	5%	0%	0%	0%	2%	23%
Invited to participate	0%	23%	14%	0%	0%	0%
Awareness of childhood cancer	0%	4%	0%	0%	0%	7%
Support UL oncology dept.	0%	5%	0%	0%	0%	0%
Met or exceeded my expectations	0%	0%	30%	9%	0%	0%
Made suggestion for improvement	0%	0%	12%	0%	2%	0%
Wonderful program	0%	18%	16%	38%	18%	10%
Just do it! (Future potential participants)	0%	0%	0%	0%	38%	10%

*Percentage of all replies per open-ended question by group.

Bold indicates a predominant code across question and groups