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Understanding Reasons for Electing Gap Years Between Undergraduate Education and Medical School and the Impact of Gap Years on the Student Experience of Medical Education

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UNDERSTANDING REASONS FOR ELECTING GAP YEARS BETWEEN
UNDERGRADUATE EDUCATION AND MEDICAL SCHOOL AND THE
IMPACT OF GAP YEARS ON THE STUDENT EXPERIENCE OF MEDICAL
EDUCATION

by

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A thesis submitted in partial fulfillment of the requirements
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ABSTRACT

Gap years have grown in popularity among many students attempting to go to medical school in recent years. According to the Association of American Medical Colleges (AAMC), more than half of matriculated students now have taken time off between their undergraduate studies and medical school[1]. While many claim benefits to taking gap years, research on the impacts of these experiences on medical students is largely nonexistent. This study aims to qualitatively analyze the gap year phenomena and its impacts on medical students through semi-structured interviews conducted at the University of Central Florida College of Medicine. Through these interviews, the researchers collected in-depth responses that were thematically analyzed through a qualitative research methodology. Emergent themes (adaptability, professional identity formation, resilience, refocusing of goals, "real world" experience, reinforcement of motivation) were found which offer insight into the reasons and motivations for electing gap years, and how medical students view the impact of their gap year experiences.

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INTRODUCTION

In recent years, it has become increasingly common for students to elect a gap year, or several, between college and medical school. Defined as a period of time "which an individual takes 'out' of formal education, training, or the workforce where that time sits in the context of a longer term career trajectory," gap years manifest in various forms2. The Association of American Medical Colleges (AAMC) recognizes taking additional coursework and strengthening GPAs, studying for the MCAT, and taking time for reflection and rejuvenation as some of the common uses of gap years. Furthermore, many students take this time to participate in structured activities such as volunteer tourism, part-time or full-time work in health care delivery, as well as part-time or full-time work in non-medical disciplines3. Other students elect to take gap years to participate in unstructured activities including leisure travel and relaxation activities. Yet still, many students become "gappers" due to unsuccessful medical school application attempts. Regardless, all types of gappers have in common the 'gap' between their undergraduate and medical educations during which time they participated in experiences not, generally, afforded to traditional medical school applicants. A quick internet search on medical school gap years yields a high volume of blog posts and personal testimonies of students who have participated in gap year activities. However, research looking at gap years in relation to a medical education is scarce and large-scale studies have not been conducted. Undoubtedly, there is great interest amongst educators and students alike of how gap year experiences translate to student outcomes in medical school, and what motivates or predisposes students to elect them in the first place.

A study by Birch and Miller attempted to analyze the determinants of electing a gap year between high school and university and found that students with lower academic achievements in high school were more likely to defer their undergraduate studies. Conversely, students with higher academic achievement levels, as measured by high school exam scores and university entrance exams, were less likely to defer an acceptance to a university. The study also found students living in rural areas to be more likely to take gap years, and older students less likely to take a similar break. They also reported that gappers earned higher grades in university, with stronger relationships and larger gains reported for students on the lower end of the grades distribution in high school. These findings suggest some tangible benefits of gap years at the university level, but its basis in arbitrary markers misses out on capturing the essence of motivation behind these decisions[4].

Another study by the University of Sydney attempted to deconstruct the gap year while analyzing the academic profiles of university students who participated in gap year experiences. The researchers found that uncertainty regarding post-high school studies and lower academic motivation predicted an inclination towards electing a gap year, where lower academic performance and lower motivation predicted the uncertainty. They further found that gap year experiences were positively correlated with and predicted academic motivation during university[3]. Assessing gap years in the context of motivational factors, both before and after participation, arguably provides a richer understanding of the phenomenon's impact.

The value of gap year experiences has further been assessed through their impacts on the career decision-making process, as indicated in a case study designed by Coetzee and Bester. This

qualitative study, framed in a constructivist-interpretivist model, utilized a hermeneutic and dialogical approach to understand career development in South Africa, recognizing that many cultural and social perspectives would lend to this development. By using this model, they aimed to contextualize the personal factors and experiences of gap year students in relation to certain career development theories. The study showed that in regard to career development and the career decision-making process, the primary value in a gap year experience may be found in the extra time it gave to gap year students for finalizing career decisions and the personal growth lent by the experience[5]. Personal growth as result of a gap year experience is itself part of a complex learning process enjoined with moral and intellectual development. O'Shea's research showed that delaying higher education, particularly for involvement in community, social, or volunteer work, allowed students to make "significant gains in personal, civic, moral, and intellectual development." They further indicate these gains may help students take "full advantage of their university experience[6]."

Although gap years have been studied at other academic levels, there is a gap in the research when it comes to the impact of gap years on medical students and medical education. Medical school is a demanding and unique form of higher education that is seeing increasing diversity in the profile of applicants and their experiences. The term "nontraditional student" is generally used to refer to any type of student coming into medical school with some sort of unconventional academic background or delay in starting school due to extensive 'other' experience following completion of an undergraduate degree. As many do, Jauhar claims they "bring maturity, diversity, broader perspectives, [and] 'life experience'[7]." Certainly, it is becoming more common for students to apply to medical school with such experiences. According to the AAMC, more

than 59.9% of matriculating medical students indicated a gap of at least one year between college graduation and matriculation into medical school in the 2015 AAMC Matriculation Student Questionnaire[1].

A study conducted at the University of Texas Medical School at Houston in 1987 attempted to examine whether there were any significant differences in the performance of students accepted through the traditional application process and those who were initially rejected. This was due to the state legislature changing the class size of 150 to 200 first-year students in 1979 which required the admission committee to select 50 additional students from the applicant pool who were previously interviewed but not chosen. Finding no meaningful differences between the two groups, the study's emphasis fell on the interview process and its inability to adequately predict future performance of medical school applicants in school and post-graduation. The study makes an important point: "There are no generally accepted criteria for identification of the 'good physician,' nor are there valid predictors of effective performance[8]." This indicates the difficulty with medical education research, where the few attempts to predict success of students based on differential factors relating to admission fall short of significant findings. There is simply no conclusive way of determining what makes a "good" student and a "good" doctor.

This study aims to provide new perspectives on the experiences of gap year students and the impacts these experiences have on them in medical school. It will attempt to use principles derived from a contemporary qualitative methodology known as interpretive phenomenological analysis (IPA), based in theories of phenomenology, hermeneutics, and idiography. Where-in, phenomenology refers to the "study of human experience and the way in which things perceived

as they appear to consciousness," and hermeneutics refers to the "practice or art of interpretation." Idiography refers to the "concern for individuality and a commitment to a rigorous finely-textured analysis of contingent, unique, and often subjective phenomena[9]." By studying the gap year phenomena with these theoretical orientations, this study aims to interpret the meaning gappers attach to their experiences by allowing them to explore their experiences through their own thoughts and feelings. Since the researcher involved with this study is themselves a pre-medical student inclined to take a gap year, meanings attributed to the responses of gappers interviewed in this study are further focused and contextualized from this perspective. As Noon confers, through analyzing individual experiences, a richer understanding for the thoughts, motivations, and behaviors of medical school gap year students can be offered[9].

METHODS

Research Design

This study aimed to understand the impacts of gap years on medical students by analyzing their perceptions of their experiences and the motivations that led them to elect the non-traditional option. This was completed through semi-structured interviews of non-traditional medical students who had taken time off between college and medical school. As was described previously, the study used a qualitative methodology to uncover a richer understanding of the topic.

Semi-structured interviews of medical students who took a gap year(s) were conducted over virtual Zoom call to collect the qualitative data necessary for data analysis. These interviews employed elements of IPA, discussed prior, where the aim was to interpret students, interpreting their own experiences[9]. Interviews were roughly split in two sections for organization purposes, with the first half of the interview asking questions pertaining to the motivations and reasons for electing gap years and the second half pertaining to the perceived benefits of these gap year(s) in medical school. Questions were structured and presented in a manner that allowed interviewees to explore their experiences in depth and offer rich responses that offered multiple angles at the issues and topics at hand. A select few interview questions formed the basis of every interview and are tabulated in the table below (Table 1). These questions were used to jumpstart conversations while various follow-up questions, comments, and sub-conversation topics were used to further conversations and garner further data from respondents.

Table 1

Research Question	Interview Structure/Questions
What are the main motivations or reasons that students elect to take gap years?	Rapport building: Self-disclosure of interviewer Where did you do your undergraduate degree and what was your major? What activities were you involved in during your gap year(s) between undergraduate and medical school? Why did you decide to do those activities in particular during your gap year? When did you first think about doing a gap year?
What were the perceived benefits (if any) of taking a gap year prior to entering medical school?	What year are you in? Can you give me a quick overview of what kind of things you have done so far in the MD program? Extracurriculars? In what ways do your think your gap year experiences helped to prepare you for medical school? Are there specific experiences that made some parts of the curriculum easier? Do you think skills and experiences from your gap year have helped you become, or relate in any way to, what Dean German describes as "The Good Doctor?" Do your gap year experience(s) relate in anyway to longer term career goals?

Participants and Interviews

All participants for this study were volunteers recruited from the University of Central Florida College of Medicine who met the general requirements of having taken a gap year(s) prior to matriculating, regardless of circumstance. The aim was to recruit a diverse range of students representing both junior and senior students throughout the MD program at UCF COM. 9 participants were recruited for this study near the anticipated and designated maximum of 10 respondents through a recruitment email sent out to all students as well as a Facebook post made in the UCF COM Facebook group. Each respondent was contacted to schedule a virtual interview, which were then completed individually in one-on-on sessions via Zoom calls, not exceeding 60 minutes. The interviews were audio recorded by a built-in function, transcribed verbatim, and deidentified to ensure anonymity of respondents.

Data Analysis

Data were analyzed through QDA Miner software in where codes were assigned to singular incidences in the data following principles of conceptual abstraction. The data were broken down, analyzed for core ideas, and assigned codes using descriptions derived from the data as well as interpretations of the researcher. These were then compared across all transcripts to determine similarities and/or differences, as well as combined to construct emerging themes. Using QDA Miner's code analysis function, several pseudo-quantitative values such as coding frequencies were also determined. Only one researcher completed this analysis procedure.

RESULTS

Of the 9 respondents, 2 were first year medical students, 3 were second year students, 1 was a third year student, and 3 were fourth year students. Furthermore, 6 out of 9 students had previously applied to medical schools and been rejected prior to taking their first gap year(s). 6 students labelled their gap years as "forced", while 3 students elected to take a gap year(s) by choice. Only 4 students were pre-med throughout college, while 5 students started in different majors or with different career outlooks. All students were STEM majors throughout college. Five students were solely interested in medical school near the time of their graduation from college, while 4 students were considering applying to more research-focused programs such as PhD, MD/PhD, and Masters programs. Most students, 7, took 2 gap years, 1 took 3 gap years, and 1 took a single gap year before matriculating into the MD program at UCF.

Every student engaged in common activities required of pre-medical students such as clinical shadowing of physicians, community service and volunteering, as well as research during their time in their undergraduate programs. However, this was very variable with some students having extensive experience in one or more of these areas and others only having minimal experience. Overall, most students (6) felt their medical school applications could use improvement, particularly in the area of clinical experience, but only 4 students cited this as a reason to elect taking a gap year. Four students spent one or more of their gap years working in a non-clinical job, such as an office clerk or lab technician, while 4 students spent one or more of their gap years as a medical scribe. Six students engaged in clinical activities during their gap years, including 2 students working non-clinical jobs who participated in shadowing on the side.

Six students also engaged in service-based activities during their gap years. Five students

explicitly reference experiencing burn-out during college, and 4 cite a motivation to take time off

from school before continuing with medical school.

Several themes regarding the question of benefits perceived from taking a gap year were

gathered from this data, as tabulated in the table below (Table 2).

Table 2

Themes	Quotes
Adaptability to change & failure	"…roll with it. You can't really, you know, complain about it too much. You can just be like 'oh [expletive removed], well that kind of sucks.' But you know, you just got to keep going so." "The people who had taken gap years and are used to changes of plans and, you know, people just being rude or people not doing this or not doing that. You know, they're like, 'oh, okay. That's the change, cool we can work with it.'"
Professional identity formation and understanding of role	"You're not the most important one anymore…the patient is and taking care of the patient is more important than your learning…and you are working as a team a lot more and you have to figure out what your roles are in that team…" "…going out into the real world and you're practicing and you're making a difference, you're the moving piece in the puzzle…I think it gives you more of a sense of camaraderie…"
Understanding the "real world"	"…looking back it was probably one of the most influential experiences for me, you know, interacting with people that were older than me, people from other countries, people that had different, you know, goals.'

	"…it's a great feeling knowing I know stuff. That kinda all goes out the window when you enter the real world…you're in a new field, instead of answering questions, now you've got to use your knowledge to create something and your deliverables could be as simple as a bar graph…but now you have consequences."
Refocusing of goals	"…students, myself included, that took gap years. I feel like we try to connect with patients more. We realize that there's a bigger emphasis on connecting with patients, being a physician for the patients…" "Everyone's pretty much going to be a doctor…You're going to get there. So then the question then our next goal kind of refocuses to well if everyone's going to be a doctor, then I want to be the best doctor I can be…"
Resiliency, burnout, and stress management	"…so if I had not decided to take a gap year and I had gone ahead with like matriculating into medical school I would not have had any time to decompress and so I would have carried all of that stress and anxiety and tension from undergrad over…" "…once you've come to experience the real world and you've experience real world stressors, then the stress of school, not that it's not stressful, but you just learn to deal with it more."
Reinforcement of motivation for medical school	"…it just helps you reset and figure out what you want to do with your life and really like, cause I feel school's just really 'go go go go go go go. Like you don't have time to stop and think, like is this what I want…" "…doing a job that wasn't medicine kind of made me understand that I need to go into medicine cause I can't be the kind of person that sits in a cubicle. I went crazy."

| Disadvantage upon return to academic life | "I'd say I was definitely behind my classmates in just like studying skills and I'll be honest, I didn't want to study when I got to school…"

"Since I took three [gap years], I wasn't exactly prepared for the amount of information that was coming at me so fast, but you adapt fairly quickly…" |
| --- | --- |

An extensive breakdown of the coding results can be found in APPENDIX A.

DISCUSSION

This study employed a two-prong approach to gathering insight on the gap year phenomena that is growing more common in pre-medical spheres and medical school culture. The first question in this studied aimed to determine whether any themes could be found across the motivations and reasons for taking gap years. With a small sample size of 9 respondents, all selected from the same institution, these results are indeed not representative of the landscape of medical students across the country— nor are they meant to be. Among the 9 students we interviewed at the University of Central Florida, we found that the majority of them did not take a gap year by choice, meaning these experiences were not planned ahead and were instead forced. Most of the students studied here-in found themselves taking gap years after unsuccessful medical school application attempts. Some of these students engaged in activities such as medical scribing to gain more clinical experience they felt, or were explicitly told, they were lacking in college, while others decided to get involved with research instead. Furthermore, a couple students graduated college without applying to medical school and instead were looking to go into research-based graduate programs before deciding to apply to medical school in their gap year. Regardless of the reason, the unifying features observed across all students' experiences include a break from academics, opportunities to engage in experiences outside of school, and greater age. All students interviewed in this study were able to speak to the reality of having time to reflect, and each further demonstrated a high degree of self-reflective capacity through their responses. Despite the distribution in experiences, motivations, and outcomes, several themes were confidently elucidated from these responses.

Adaptability to change & failure

Across virtually all responses, one of the primary things students spoke about was the connection between their gap year experiences and a greater sense of adaptability in medical school. One after the other, students consistently referenced work-life experiences from their gap years in their personal assessments of their enhanced ability to withstand change and failures. Many even referenced the COVID-19 crisis as a present-day example of this, in where they spoke about how changes to curriculum and education delivery were easier for them to adapt to since they'd frequently been in positions previously in professional settings where last-minute changes occurred regularly with little notice. There was a consensus among the respondents that their peers who'd come straight to medical school from college were less willing to accept change, more likely to complain and pushback against school policies, and less likely to adapt to the implicit ambiguity they were already facing as students in medical school. Previous studies have shown that tolerance to ambiguity is a crucial competency for physicians to embody in their practice, and we already know that tolerance to ambiguity is found to be higher in older students in medical school[10]. Our subjects further demonstrated adaptability and enhanced tolerance to ambiguity through their managing of failed medical school application attempts and short-term uncertainty in their career outlooks as a result. This is also correlated with the overarching sense of humility seen among these students, largely stemming from failures, and especially medical school rejections. The students recounted that their enhanced sense of humility and humble attitude, has translated to ease in communicating with patients and better patient outcomes.

Professional identity formation and understanding of role

Kalet et. al exclaim professional identity formation as one of the major goals of medical education around the country in where the core beliefs and values of a physician are instilled in medical students[11]. The students interviewed in our study showed accelerated understanding of these values and demonstrated a greater focus on their professional identities as physicians, or physicians-in-training, as a result of their gap year experiences. Students were quick to speak about intangible benefits such as greater communication skills, teamwork skills, accountability and responsibility. Conversely, they were less concerned about outcompeting other students or performing the best academically. Instead, references to the idea of being a "physician for the patient" were made across the interviews, and students often spoke about how they were more concerned about being present for the patient and fulfilling their role on the patient care team versus their own learning. One student spoke to the concept of "camaraderie" learned in her gap year working in a research lab, which pretty well sums up many other responses that similarly spoke to realizations and sometimes rude awakenings through gap year experiences and failures that showed students they weren't the "focus" anymore . Students also often spoke about how they themselves observed other gappers to have a better grasp on the professional aspects of being a medical student, especially in 3rd and 4th year where students round with residents and attending physicians on clinical rotations. It was obvious through their responses that these students viewed and identified themselves as part of the patient care team before they identified as students.

Understanding the "real world"

Since these students were able to temporarily step out of the academic environment, they demonstrated a greater understanding of the "real world" in a professional sense. Through their own reflections, across almost all interviews, students pointed to their gap years as giving them an opportunity to see how the world works outside of school and the bubble of education. By gaining experience in various full-time and part-time roles, students picked up on and/or honed certain professional skills to a degree they believe would not have been possible, and was not possible, through similar involvement in college, albeit at a lower time commitment. Furthermore, students spoke highly about the diversity in perspectives they received through working with different people of different ages, backgrounds, and competencies, in their workplaces. Many students talked about having to work with difficult people, managing conflict, productivity, consequences, and more as being takeaways from their "real world" experiences that they are now able to apply in medical school, especially in 3rd and 4th years. Additionally, it is crucial for medical students and physicians to understand how the world functions outside of their spheres of influence, given that the people of the "real world"— with their "real world" stressors and concerns— are the ones they serve to treat. One student spoke about how her gap year experience working on a farm helped her to identify with other people her age who had directly gone off into careers after college, and thus gave her a better understanding of what caused them stress and was potentially impacting their health. The same student also spoke about working with farmers and how it gave her a better understanding of their health needs and legitimate health concerns that they were passing off as occupational hazards.

Refocusing of goals

Interviewees also spoke very much to the refocusing of their goals during and as a result of their gap years. They largely believed that their gap years helped them to better prioritize items and assign importance to things in their lives by providing them with the time to reflect about what was important to them in the long-run. Seen across all interviews was the idea that medical school only constituted a part of one's life and was not to fully consume one's life. Intertwined with perspectives gained from being in the real world and gaining life experiences, these students were better able to assign importance to tasks that needed to be completed in medical school as well as relationships, hobbies, and other external interests. The majority of these students spoke about how since they had already gotten into medical school and felt they were bound to be doctors, that they're goals refocused to how to become the "best doctor". By being able to better prioritize tasks, assign greater value to life outside of medicine, and stress less about medical school, students were then able to focus more on becoming a better patient-oriented doctor as they wished.

Resiliency, burnout, and stress management

Burnout was seen across the dataset with most students recalling that they experienced burnout during college. Then, one of the secondary motivations for students to take a gap year was to take a break from school because of the burnout they experienced. This gave students a chance to decompress, relax, and develop strategies for better stress management in medical school. While

still engaged in relatively stressful experiences and occupations during these gap years, students recalled that the stresses experienced there were different than those experienced in school. One student put it that in a job, your stresses largely stay at work and boundaries can be drawn between work and home, whereas school follows you everywhere and most especially into your home. Most students rather enjoyed the stresses of work and viewed them as challenges from which to learn. It was these responsibilities and experiences in their gap years, as well as having a break from school, that helped these students better manage stress in medical school. There was yet another consensus among students that their non-gapper peers tended to get stressed more and had greater difficulty bouncing back from challenges, whereas gappers found it easier to take confrontation, challenges, and setbacks in stride. This ability speaks to the resilience of these students, who attribute a good amount of this competency to their gap year experiences. While there is not much research on the resilience of medical students who've taken gap years, literature on resilience in medical school already finds that medical students with greater resilience levels have better quality of life and fare better in medical school and beyond[12]. This is a crucial competency that should receive more focus in medical education circles as psychological stress is already higher in medical students compared to their peers[13].

Reinforcement of motivation for medical school

Six out of 9 students stated that, at the time of their first application, they were not entirely sure if they could make a convincing argument for why they wanted to go to medical school. Some of these students also were exploring other career paths that were more research heavy, and it was their gap year that led them to ultimately switch to medicine. In the University of Sydney study mentioned earlier, which assessed gap years between high school and undergraduate studies, uncertainty regarding post-graduate plans was associated with a higher likelihood of electing a gap year[3]. Across the dataset, we saw that students solidified and reinforced their motivations for going to medical school during their gap year experiences, even if medical school was always their plan. Some students found greater passion for medicine after they started scribing during their gap years, while other students found greater passion for medicine while working desk or research jobs and realizing how much they disliked those environments. This reinvigorated passion for medicine translates, once again, to better patient interactions and outcomes in medical school, as these students recall. Furthermore, many students claimed to know what they want to specialize in because of their gap year experiences, whether that was research in neuroscience that invigorated a passion for radiology and brain scans, or a scribing position with an oncologist. These motivations go even further, with all students having spoken about additional areas they would like to be involved in such as research, advocacy, or teaching, and directly relating those passions to experiences they had in their gap years.

Disadvantage upon return to academic life

Overall, every student interviewed expressed that there were no major benefits or disadvantages of taking gap years on academic performance specifically. Students did not find that their experiences helped better prepare them for the content of the curriculum, beyond some familiarity gained through research in certain fields. Students did feel that they were at a slight disadvantage having been out of academia and felt that their study skills were less sharp than students who had not taken a break between college and medical school. However, this disadvantage too was short-lived as most students cited their adaptability competency in helping them adapt rather quickly to being back in school. When speaking about the Focused Inquiry & Research Experience (FIRE) research project, a component of the UCF COM curriculum, students with extensive research experience in their gap years said that their involvement in those spaces did help them in being able to carry out their FIRE research project *in addition* to their regular schooling. Again, generally, the consensus among students was that most of the benefits of gap years manifested as intangible skills and competencies, including patient interface skills, maturity, empathy, and patience.

All the themes elucidated from across the interviews play into what we and the interviewees discuss to be "The Good Doctor", borrowing from the UCF COM tradition run by Dr. Deborah German, Dean of the College of Medicine, at each entering class' white coat ceremony. During this activity, new medical students entering the UCF COM are asked to share qualities they believe make up "The Good Doctor", and all terms are written on a blackboard at the front of the room. Participants in this study spoke to several qualities throughout their interviews that they

believe embody "The Good Doctor", including the following: humility, genuineness, resilience, honesty, patience, empathy, and maturity. While there is no way to define "The Good Doctor", in the context of this study, we bring together all the themes and qualities our respondents shared and demonstrated to us and put them forth towards "The Good Doctor". This because our respondents believe these qualities and experiences contribute to them becoming better doctors (Figure 1).

Figure 1

In their self-reflective capacities, these students have indicated growth and maturity through their gap years and attribute this growth, described in the themes above, to better outcomes in medical school, most especially at the physician-patient front. The students were careful to point out that the benefits they see today are due to an equal combination between taking time off, the

experiences they engaged in, as well as age, and that the removal of either one of those factors would result in different outcomes. They were also careful to add that the growth they've experienced may too be experienced by non-gappers in medical school, but that they've rather received a jumpstart which allows them to start reaping the benefits in medical school as opposed to later during residency. This does not diminish the impact of the maturity, diversity, broader perspectives, and life experience these students bring, as concurred by Jauhar[7].

Since this study was only conducted with 9 participants, and all from one institution, we must address the sampling bias that is inherently present herein. It is quite possible that the students who responded to our requests for the study are those who feel most strongly about their gap year experiences. Furthermore, perhaps with a larger pool of participants, we might see more varied answers regarding the motivations for taking gap years, and possibly more students who elected them by choice. Lastly, since all data was collected and analyzed by a pre-medical undergraduate student planning on taking his own gap year before matriculation, bias is present in the directionality and interpretation of data. According to next steps, we aim to have the coding process and data analysis redone by another researcher. This is a very exciting space and a lot of information remains to be discovered regarding gap years and medical education. In the future, we hope knowledge gained from this study, as well as future studies, shed more light on the impact of gap years on medical education outcomes. This could be helpful in improving pre-medical resources as well as revisiting the selection process.

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APPENDIX A

Coding Results

Category	Code	Description	Count	% Codes	Cases	% Cases
Undergraduate Time	Completed graduation requirements for degree early		3	0.5%	3	33.3%
Undergraduate Time	Engaged in pre-med volunteering, shadowing, research activities in undergrad		10	1.7%	8	88.9%
Undergraduate Time	Experienced burn-out in undergrad		7	1.2%	5	55.6%
Undergraduate Time	Initially was not pursuing medicine (research, PhD focus, major switch etc.)		7	1.2%	5	55.6%
Undergraduate Time	Began seeing greater interest in medicine through activities in undergrad		2	0.3%	1	11.1%
Undergraduate Time	Did not feel they adequately participated in shadowing, volunteering, other pre-medical requirements		6	1.0%	5	55.6%
Undergraduate Time	A convincing interest in/motivation for medicine was not initially present		11	1.9%	6	66.7%
Motivations for Gap Year	Decision to take gap year was ultimately		6	1.0%	6	66.7%

	not by choice (forced)					
Motivations for Gap Year	Considered a gap year but did not feel any particular way about it		3	0.5%	2	22.2%
Motivations for Gap Year	Motivated to take gap year to improve application/gain more experience		6	1.0%	4	44.4%
Motivations for Gap Year	Motivated to take gap year to gain life experience		3	0.5%	2	22.2%
Motivations for Gap Year	Rejected from medical school on first application attempt in particular		6	1.0%	5	55.6%
Motivations for Gap Year	Felt application needed improvement, particularly in the area of clinical experience		13	2.2%	6	66.7%
Motivations for Gap Year	Motivated to take some time off from academics		5	0.8%	4	44.4%
Motivations for Gap Year	Motivated to gain real world/work experience		5	0.8%	3	33.3%
Motivations for Gap Year	Lack of convincing motivation for medical school was a factor in taking gap year		5	0.8%	3	33.3%
Motivations for Gap Year	Explicitly wanted to go directly into medical school		1	0.2%	1	11.1%
Motivations for Gap Year	Gap year was motivated by choice and unrelated to a failed		5	0.8%	3	33.3%

	application attempt					
Motivations for Gap Year	Saw an opportunity to take a break and take time off for self		4	0.7%	3	33.3%
Nature of Gap Year Experiences	Felt it was important to demonstrate continued involvement in academics during gap year		4	0.7%	3	33.3%
Nature of Gap Year Experiences	Worked in a non-clinical job not intended for medical school and not used to build lacking clinical experience		6	1.0%	4	44.4%
Nature of Gap Year Experiences	Involved with service based activities during gap year		7	1.2%	6	66.7%
Nature of Gap Year Experiences	Involved with youth/teaching activities (youth groups, tutoring, mentoring)		4	0.7%	2	22.2%
Nature of Gap Year Experiences	Engaged in pre-med activities such as volunteering, shadowing, research for application		6	1.0%	4	44.4%
Nature of Gap Year Experiences	Felt downcast after med school rejection		2	0.3%	2	22.2%
Nature of Gap Year Experiences	Engaged in personal projects out of personal interest and not for med school		5	0.8%	4	44.4%

Nature of Gap Year Experiences	First gap year was due to different career choice (such as research, PhD) - unrelated to a medical school application cycle		2	0.3%	1	11.1%
Nature of Gap Year Experiences	Specific gap year experience such as job clarified motivation and interest in medicine, either by disliking job or feeling drawn to clinical job		5	0.8%	4	44.4%
Nature of Gap Year Experiences	Reflecting on purpose and human side of medicine		3	0.5%	3	33.3%
Nature of Gap Year Experiences	Gap year job/experience was a continuation of a job in undegrad		4	0.7%	3	33.3%
Nature of Gap Year Experiences	Was involved in clinical work either through job or on the side		4	0.7%	4	44.4%
Nature of Gap Year Experiences	Engaged in heavy bench top style research in gap year		1	0.2%	1	11.1%
Nature of Gap Year Experiences	Shadowing gave them insights into what fields they did and did not like		2	0.3%	2	22.2%
Nature of Gap Year Experiences	Stresses the impotance of pursuing experiences that are		2	0.3%	2	22.2%

	meaningful to you personally				
Nature of Gap Year Experiences	Believes some methods of medical schools applying objective measures to evaluate students' experiences should cause applicants more offense		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Working with different people of diverse backgrounds		9	1.5%	5	55.6%
Reflecting of Gap Year Benefits/Gap Year in Review	Managing failure, difficulties, challenges, and conflict		14	2.4%	5	55.6%
Reflecting of Gap Year Benefits/Gap Year in Review	Learned the importance of teamwork, teamwork skills, reduced roll as an individual no longer at the center		18	3.1%	5	55.6%
Reflecting of Gap Year Benefits/Gap Year in Review	Understanding own role and gaining perspective of the world		7	1.2%	6	66.7%
Reflecting of Gap Year Benefits/Gap Year in Review	Setting and management of life priorities, understanding the role of medical school in one's life		14	2.4%	4	44.4%
Reflecting of Gap Year Benefits/Gap Year in Review	Experienced reduced stress and recognizes better ability to manage stress		6	1.0%	4	44.4%

Reflecting of Gap Year Benefits/Gap Year in Review	Greater maturity dictated by age		5	0.8%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Attributes some benefits to mere fact of having time off/break (often in relation to burn-out)		4	0.7%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Observes fellow gappers are more relaxed and stress-free compared to other students		6	1.0%	5	55.6%
Reflecting of Gap Year Benefits/Gap Year in Review	Observes non gappers have difficulty understanding role in medical school		5	0.8%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Learned things are not always in one's control and you don't always get your way in life (perspective, adaptability, stress management)		19	3.2%	8	88.9%
Reflecting of Gap Year Benefits/Gap Year in Review	Learned accountability/ responsibility		10	1.7%	4	44.4%
Reflecting of Gap Year Benefits/Gap Year in Review	"Personal Growth"		4	0.7%	4	44.4%
Reflecting of Gap Year Benefits/Gap Year in Review	Learned leadership skills		2	0.3%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Speaks to different daily obligation, and better work/life boundaries found with job,		5	0.8%	3	33.3%

	but missing in school					
Reflecting of Gap Year Benefits/Gap Year in Review	Attributes benefits to experience + time off		4	0.7%	3	33.3%
Reflecting of Gap Year Benefits/Gap Year in Review	Lessons on and strengthening of humility		5	0.8%	3	33.3%
Reflecting of Gap Year Benefits/Gap Year in Review	Medical school rejection is a major example of failure, not getting own way, and cause for humility strengthening		6	1.0%	3	33.3%
Reflecting of Gap Year Benefits/Gap Year in Review	Different experience found in full time job experience and break from academia		7	1.2%	5	55.6%
Reflecting of Gap Year Benefits/Gap Year in Review	Taking time outside of job to develop self and hobbies		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Greater adaptability to changes and unexpected outcomes		10	1.7%	6	66.7%
Reflecting of Gap Year Benefits/Gap Year in Review	Is able to observe differences with students who have not taken gap years and can identify them		4	0.7%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Recharge after burn-out		3	0.5%	3	33.3%
Reflecting of Gap Year Benefits/Gap Year in Review	Lowkey, lowered ego, less worry about being the "best"		4	0.7%	4	44.4%
Reflecting of Gap Year Benefits/Gap Year in Review	Rejection and experience combined, experience		1	0.2%	1	11.1%

Reflecting of Gap Year Benefits/Gap Year in Review	was just as important					
Reflecting of Gap Year Benefits/Gap Year in Review	Development of time management skills		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Is able to identify what is important to them		4	0.7%	4	44.4%
Reflecting of Gap Year Benefits/Gap Year in Review	Believes mental health and personal stability are crucial for patient outcomes, and that mental health benefited by taking break after being burnt out		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Identity formation in the real world and greater relatability with those of other professions		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Identifies greater reflective capacity and space for growth, areas in which they were challenged and grew unexpectedly		1	0.2%	1	11.1%
Reflecting of Gap Year Benefits/Gap Year in Review	Learning quick and innovative decision making skills		3	0.5%	2	22.2%
Reflecting of Gap Year Benefits/Gap Year in Review	Believes it's about life experience, and gap year gave them extensive life experience that otherwise would not		2	0.3%	1	11.1%

	have taken place					
Reasons for Electing Specific Gap Year Experiences	Personal interest with associated benefit of diversifying application		8	1.4%	4	44.4%
Reasons for Electing Specific Gap Year Experiences	Demonstrating utilization of time in valuable ways		1	0.2%	1	11.1%
Reasons for Electing Specific Gap Year Experiences	Engaging in pre-med activities due to explicit lack in undergrad, associated with rejection or reduced chance of acceptance		5	0.8%	3	33.3%
Reasons for Electing Specific Gap Year Experiences	Needed more clinical experience specifically		4	0.7%	2	22.2%
Involvement in Medical School	Decent involvement with extra curriculars in medical school (volunteering, free clinics, etc.)		6	1.0%	6	66.7%
Involvement in Medical School	Participation in these activities is unrelated to gap year experiences, or a deviation from gap year experiences		2	0.3%	2	22.2%
Involvement in Medical School	Rather uninvolved extra curricularly in medical school		1	0.2%	1	11.1%
Involvement in Medical School	Observes that first year of medical school standardizes all students- everyone		1	0.2%	1	11.1%

	comes on the same playing field					
Negatives of Gap Year	Felt at disadvantage compared to other students for coming back into academic environment after lengthy break		6	1.0%	4	44.4%
Negatives of Gap Year	However, academic disadvantage was shortlived or not overly significant (adaptability)		5	0.8%	4	44.4%
Negatives of Gap Year	Missing gap year work experience in medical school		2	0.3%	2	22.2%
The Good Doctor	Sees medicine's defining virtue as a need to help people and give back		9	1.5%	7	77.8%
The Good Doctor	Felt those experiences/skills make them better person and thus better doctor		9	1.5%	6	66.7%
The Good Doctor	Patience/resiliency = better doctor		6	1.0%	4	44.4%
The Good Doctor	Experiences, time off, and age have led to greater maturity, development of better person and doctor		7	1.2%	5	55.6%
The Good Doctor	Believes dealing with failure of applying and more experiences of		2	0.3%	2	22.2%

	failure through experiences, make them even better					
The Good Doctor	Observes greater ability to interface with patients		15	2.5%	6	66.7%
The Good Doctor	Responsiblity and role on team of care		6	1.0%	5	55.6%
The Good Doctor	Sees greater benefits in intangible areas, including patience, empathy, maturity, over curriculum benefits and speaks to the"Good Doctor"		12	2.0%	7	77.8%
The Good Doctor	Doesn't worry about being best academically, worries about being the best doctor		11	1.9%	6	66.7%
The Good Doctor	Refocusing/reinforcing of goals as a physician		10	1.7%	5	55.6%
The Good Doctor	Observes humility gained through dealing with adversity directly relates to better patient interactions		6	1.0%	4	44.4%
The Good Doctor	Believes greater understanding of different types of diversity can help them provide better care to patients		2	0.3%	1	11.1%

The Good Doctor	Believes students who come straight out of college are less skilled in interfacing with patients		1	0.2%	1	11.1%
Benefits of Gap Year Directly Related With Medical School	Feels gap year(s) were most beneficial for 3rd/4th years		2	0.3%	1	11.1%
Benefits of Gap Year Directly Related With Medical School	Observe no gappers struggling with adapting to unstructured/independent work		2	0.3%	2	22.2%
Benefits of Gap Year Directly Related With Medical School	Understanding that the patient comes first and learning second		5	0.8%	3	33.3%
Benefits of Gap Year Directly Related With Medical School	Understanding the importance of "now" and less concerned about becoming a doctor since that is all but guaranteed		4	0.7%	3	33.3%
Benefits of Gap Year Directly Related With Medical School	Believes being out of academia and learning to not be the spotlight is very important		3	0.5%	3	33.3%
Benefits of Gap Year Directly Related With Medical School	Relates professional interactions on the job to enhanced interactions with professionals in medical school environment		1	0.2%	1	11.1%
Benefits of Gap Year	Gap year experiences		4	0.7%	4	44.4%

Directly Related With Medical School	assisted with curriculum (research/FIRE)					
Benefits of Gap Year Directly Related With Medical School	Speaks to the differences in expectations of gappers and non gappers, where non gappers struggle with complaining/feel more entitled.		8	1.4%	4	44.4%
Benefits of Gap Year Directly Related With Medical School	Observes non-gappers struggling to adjust to a less entitled environment, particularly 3rd/4th year		3	0.5%	2	22.2%
Benefits of Gap Year Directly Related With Medical School	Slight introductory benefits with curriculum, but insignificant in long-run		5	0.8%	3	33.3%
Benefits of Gap Year Directly Related With Medical School	Believes gap year is not necessarily transformative, but gives you head start on growth when you are free from school		4	0.7%	3	33.3%
Benefits of Gap Year Directly Related With Medical School	Speaks to head start on growing pains, resulting in already strenuous med school experience to be less jarring		1	0.2%	1	11.1%
Benefits of Gap Year Directly Related With Medical School	Reinvigorated, solidified, and confirmed medicine as field of choice and the motivation for		11	1.9%	5	55.6%

	becoming a physician				
Benefits of Gap Year Directly Related With Medical School	Doesn't necessarily feel any advantage towards curriculum		1	0.2%	1	11.1%
Benefits of Gap Year Directly Related With Medical School	Clinical knowledge gained from gap year experience proved relevant and aided in relating to material		1	0.2%	1	11.1%
Benefits of Gap Year Directly Related With Medical School	Observed other students without extensive clinical experience struggle through a learning curve when it came to patient interaction and taking histories		2	0.3%	2	22.2%
Benefits of Gap Year Directly Related With Medical School	Experienced same learning curve, just earlier in gap year which allowed them to shine more in medical school where others are now in the learning curve		2	0.3%	2	22.2%
Benefits of Gap Year Directly Related With Medical School	Has a fundamentally stronger understanding of the expectations and realities of a practicing physician		8	1.4%	4	44.4%
Benefits of Gap Year Directly	Found curriculum to largely be a rehash of		2	0.3%	2	22.2%

Related With Medical School	undergraduate major					
Benefits of Gap Year Directly Related With Medical School	Did not find the adjustment to be particularly difficult and found transition to be comfortable as soon as expectations are were experienced		1	0.2%	1	11.1%
Long Term Goals & Relationship With Gap Year	Long term career goals are undecided and do not relate with gap year experiences		3	0.5%	2	22.2%
Long Term Goals & Relationship With Gap Year	Sees future involvement with service and free clinic work later on		4	0.7%	3	33.3%
Long Term Goals & Relationship With Gap Year	Feels they have adequately served their time in research and has no interest in returning - gap year experience negatively reinforces a previous interest		2	0.3%	2	22.2%
Long Term Goals & Relationship With Gap Year	Knows what they want to specialize in because of gap year		9	1.5%	5	55.6%
Long Term Goals & Relationship With Gap Year	Remains interested in research and would like to be involved again in the future		3	0.5%	3	33.3%
Long Term Goals &	Gap year experiences		4	0.7%	4	44.4%

Relationship With Gap Year	invigorate a desire to teach in the future					
Long Term Goals & Relationship With Gap Year	Gap year experiences inspire interest in advocay work			5	0.8%	3	33.3%