

# Pharma's Marketing Influence on Medical Students and the Need for Culturally Competent and Stricter Policy and Educational Curriculum in Medical Schools: A Comparative Analysis of Social Scientific Research between Poland and the U.S.

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**Abstract:** It is reported that medical students both in the U.S. and Poland have experience of interacting with pharmaceutical company representatives (pharma reps) during their school years. Studies have warned that the interaction typically initiated by the pharma reps' general gift-giving eventually leads to the quid pro quo relationship between the pharma company and the future doctors, the result of which is that the doctors will prescribe their patients drugs in favor of the pharma company. Built upon the existing finding, this research engages in analysis with three foci. The first is to compare attitudinal differences of the American and Polish medical students as they interact with pharma reps. Second, it investigates the role of the different economic and cultural elements (respectively in the U.S. and Poland) in the students' attitudinal differences. Last, it suggests that the medical schools in both countries should have strict policies and effective education curriculum to help their students better prepare to interact ethically with pharma reps. Since there has been no direct comparative cultural analysis of this kind which is known in a published literature or report, the authors believe that the paper will serve as a catalyst for further research in the area.

**Keywords:** graduate medical education, comparative cultural study, ethics policy, pharmaceutical industry, Poland, gift-giving, relationship marketing.

## I. INTRODUCTION

As the story of the Trojan horse suggests, one should be suspicious of those bearing gifts<sup>1</sup> The adage is appropriate for the skepticism about relationships the pharmaceutical industry establishes with medical students that is largely based on gift-giving. As

<sup>1</sup> Virgil (a.k.a. Publius Vergilius Maro) (19BC), *Aeneid*, Book 2.

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medical students advance in their study to become physicians, the students' attitudes towards the pharmaceutical industry are being shaped by the encounters they have with medical professionals they meet as part of their study and residencies.<sup>2</sup> On the other hand, their exposure towards pharmaceutical company representatives (pharma reps, henceforth) during their study years plays also a significant role, perhaps a definitive role, in their perception about pharma. There have been several studies in the U.S. and Europe which shows how pharmaceutical companies (pharma, henceforth) influence the mind of the future doctors as they compete with each other for the global market share.<sup>3</sup> Their marketing tactics on campus includes straightforward gifts,<sup>4</sup> free drug samples,<sup>5</sup> free meal offer,<sup>6</sup> personal networking,<sup>7</sup> and free education events sponsored by pharma.<sup>8</sup>

According to surveys, most medical students believe that gifts from pharma, such as meals, small promotional electronic gadgets, and books, are appropriate. Some students justify accepting such gifts by referring to their financial situations and the debts or student loans incurring during their study.<sup>9</sup> In addition, the students participate in the education events where, while they are enjoying fine dining, pharma provide information about their own products, which is often biased; the participants tend to believe information from pharma as accurate.<sup>10</sup> However, as several research reveals, what seems to be harmless gifts has a tremendous effect on the future doctors. It is psychologically the case that even subtle exposure to small promotional items can influence the students' attitudes about pharma and their products. Gift-giving triggers actions, for us all as human beings psychologically play by the rule of reciprocity – e.g., even accepting small gifts such as a pen or notebook can cause an unconscious need to repay.<sup>11</sup> Therefore, there is no mystery that acceptance of gifts in various forms from pharma naturally affects physicians' prescribing behavior in favor of the pharma. As the data confirms, it is apparent that the doctors who cooperate with pharma

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<sup>2</sup> Bernard Lo, and Marilyn J. Field, eds., *Conflict of Interest in Medical Research, Education, and Practice* (Washington, DC: The National Academies Press, 2009), s. 122.

<sup>3</sup> Frederick S. Sierles et al, "Medical Students' Exposure to and Attitudes about Drug Company Interactions: a National Survey," *Journal of American Medical Association* (2005) 294:1036; Melena Bellin et al., "Medical students' Exposure to Pharmaceutical Industry Marketing: a Survey at One US Medical School," *Academic Medicine* (2004) 79: 1043; Lea, Dordi, Olav Spigset, and Lars Slørdal, "Norwegian medical students' attitudes towards the pharmaceutical industry," *European journal of clinical pharmacology* 66.7 (2010): 727-733.

<sup>4</sup> Frederick S. Sierles et al, "Medical Students' Exposure to and Attitudes about Drug Company Interactions: a National Survey," *Journal of American Medical Association* (2005) 294:1036; Melena Bellin et al., "Medical students' Exposure to Pharmaceutical Industry Marketing: a Survey at One US Medical School," *Academic Medicine* (2004) 79: 1043; Kirsten E Austad et al., "Changing Interactions between Physician Trainees and the Pharmaceutical Industry: a National Survey," *Journal of General Internal Medicine* (2013) 28: 1070.

<sup>5</sup> Cody Soyk et al., "Medical Student Exposure to and Attitudes about Pharmaceutical Companies," *Wisconsin Medical Journal* (2010) 109:145; Eric H. Fein, Michelle L. Vermillion, and Sebastian H. Uijtdehaage, "Pre-clinical Medical Students' Exposure to and Attitudes toward Pharmaceutical Industry Marketing," *Medical Education Online* (Dec. 2009), s, <http://dx.doi.org/10.3402/meo.v12i.4465>.

<sup>6</sup> Association of American Medical Colleges. "Industry Funding of Medical Education," accessed Sep. 27, 2017, [https://www.aamc.org/download/157370/data/industry\\_funding\\_report.pdf](https://www.aamc.org/download/157370/data/industry_funding_report.pdf); Sierles et al., *Medical Students' Exposure*, 1036; Fein, Vermillion, and Uijtdehaage, "Pre-clinical Medical Students' Exposure."

<sup>7</sup> Kirsten E Austad, Jerry Avorn, and Aaron S. Kesselheim, "Medical Students' Exposure to and Attitudes about the Pharmaceutical Industry: a Systematic Review," *PLoS Medicine* (2011): e1001037.

<sup>8</sup> Sierles et al, *Medical Students' Exposure*, 1038; Soyk et al., *Medical Student Exposure*, 144; Austad et al, "Medical Students' Exposure," 1065.

<sup>9</sup> Sierles et al, *Medical Students' Exposure*, 1038; Fein et al, "Pre-clinical Medical Students' Exposure"

<sup>10</sup> Noordin Othman, Agnes Vitry and Elizabeth E. Roughead, "Quality of Pharmaceutical Advertisements in Medical Journals: A Systematic Review," *PLoS One* (2009) 4: e6350; Ashley Wazana, "Physicians and the Pharmaceutical Industry: Is a Gift Ever Just a Gift?" *Journal of American Medical Association* (2000) 283: 376; *Ibid*, 375; Marta Makowska, "Interactions between Doctors and Pharmaceutical Sales Representatives in a Former Communist Country," *Cambridge Quarterly of Healthcare Ethics* (2014) 23: 351.

<sup>11</sup> Dana Katz, Arthur L. Caplan, and Jon F. Merz. "All Gifts Large and Small: Toward an Understanding of the Ethics of Pharmaceutical Industry Gift-Giving," *American Journal of Bioethics* (2010) 10: 11-17; James P. Orłowski, and Leon Wateska, "The Effects of Pharmaceutical Firm Enticements on Physician Prescribing Patterns: There's No Such Thing as a Free Lunch," *Chest* (1992) 102: 270-273; Elizabeth H Creyer, and Ilias Hrsistodoulakis, "Marketing Pharmaceutical Products to Physicians. Sales Reps Influence Physicians' Impressions of the Industry," *Marketing Health Service* (1997) 18: 36; Daniella A. Zipkin and Michael A. Sreinman, "Interactions between Pharmaceutical Representatives and Doctors in Training. A Thematic Review," *Journal of General Internal Medicine* (2005) 20: 777; Aguilar C. DeJong et al., "Pharmaceutical Industry-Sponsored Meals and Physician Prescribing Patterns for Medicare Beneficiaries," *JAMA Internal Medicine* (2016) 176: 1114; Charles Ornstein, Mike Tigas, and Ryann Grochowski Jones, "Now There's Proof: Docs Who Get Company Cash Tend to Prescribe More Brand-Name Meds," accessed Sep. 27, 2017, <https://www.propublica.org/article/doctors-who-take-company-cash-tend-to-prescribe-more-brand-name-drugs>.

prescribe their patients the drugs manufactured by the pharma far more than their cheaper generic counterparts.<sup>12</sup> This prescribing behavior, of course, includes the case when physicians prescribe highly expensive drugs.<sup>13</sup>

As studies also point out, the pharma's marketing strategy has become personal and more sophisticated. Given the fact that, the more advanced students are in their study, the more receptive and open to communication with pharma they are, pharma uses the so-called "relationship marketing."<sup>14</sup> That is, pharma reps slowly and steadily build relationship with the future doctors through their study years while getting the future physicians accustomed to their brands and offer various gifts and privileges.<sup>15</sup> In the end, after the students become practicing physicians, they find it hard to ignore the benefits they got through the reps whom they now know personally well, and the only way they can pay them back is writing prescriptions for the pharma.<sup>16</sup>

There have been comprehensive research assessments about the relationship between pharma and medical students in the U.S., while no such research was done previously in Poland.<sup>17</sup> Also, there has been no direct comparison of pharma's marketing tactics with medical students between Poland and the U.S. which this research intends to perform. Meanwhile, the authors reckon that the same pharma firms were able to establish their market in both countries as they developed the marketing tactics tailored to each society's culture and socio-economic environment.<sup>18</sup> Thus, we shall pay attention to the cultural and socio-economic factors.

This research primarily addresses the following three. The first is a comparative social scientific analysis made in a different economic and cultural context. We hope to show how much direct exposure the medical students have towards the pharmaceutical industry's marketing tactics, which would inherently help form the quid pro quo relationship between the pharma and the future doctors in Poland and in the U.S. The second is to examine if the different economic and cultural situations respectively in the U.S. and Poland explain, in a significant way, the students' attitudinal differences of perception about pharma in general and the gift-acceptance in particular. Last, the research suggests that, both in Poland and the U.S., a medical school's ethics curriculum and policy matters, in the sense that it has a tremendous influence on their medical students and that the schools should develop and implement strict policies and an effective education curriculum to equip their students with ethical tools to interact with the pharma reps.

This research was conducted by using an anonymous, self-administered questionnaire given to 1005 medical students from five different medical schools in Poland and the U.S. (554 respondents in Poland and 451 in the U.S.). Five key areas were explored to assess the medical students' responses about their interaction with pharma: (1) the students' perceptions about their contact with pharma, (2) how often and in what manner they have interacted with pharma, (3) what ethical attitudes they have towards accepting gifts from pharma, (4) whether their medical schools prepare them ethically to interact with pharma, (5) the level of student trust in the information provided by pharma. To give an analytic snapshot, the results yielded by PS Imago 4 data analyses indicate a significant difference between the U.S. and Polish medical students about the ethical preparedness. Polish students were not as ethically prepared to interact with pharma as the U.S. students in terms of their competency level ( $p < .001$  for 5 different questions). On the other hand, the analysis shows that the difference is significant between the U.S. and Polish students in their unwillingness to accept any gifts (17.1% vs. 13.1%;  $p < .05$ ), the result of which suggests that pharma's influence on the prescribing behavior of future physicians can be substantial.

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<sup>12</sup> Wazana, "Physicians and the Pharmaceutical Industry," 378; Ornstein, Tigas, and Grochowski Jones, "Now There's Proof."

<sup>13</sup> Shawn T. Caudill et al., "Physicians, Pharmaceutical Sales Representatives, and the Cost of Prescribing," *Archives of Family Medicine* (1996) 5: 206.

<sup>14</sup> Matthew M. Fitz et al., "The Hidden Curriculum: Medical Students' Changing Opinions toward the Pharmaceutical Industry" *Academic Medicine* (2007) 82:S2; Paul L. Hyman et al., "Attitudes of Preclinical and Clinical Medical Students toward Interactions with the Pharmaceutical Industry," *Academic Medicine* (2007) 84: 97.

<sup>15</sup> See more: Robert F. Wright, and William J. Lundstrom, "Physicians' Perceptions of Pharmaceutical Sales Representatives: A Model for Analysing the Customer Relationship" *Journal of Medical Marketing* (2004) 4:29-38.

<sup>16</sup> David Grande et al., "Effect of exposure to small pharmaceutical promotional items on treatment preferences," *Archives of Internal Medicine* (2009) 169: 887.

<sup>17</sup> Ibid., Source in 49.

<sup>18</sup> The World Health Organization (WHO)'s report on the differences about educational initiatives for medical and pharmacy students about drug promotion does not include data concerning pharma's interaction with medical schools. The authors hope that this research, along with the pre-existing studies, will contribute to this area as well. See Barbara Mintez, "Educational initiatives for medical and pharmacy students about drug promotion: an international cross-sectional survey," World Health Organization and Health Action International (2005).

## II. BACKGROUND

### A. *Pharmaceutical Marketing and Legal and Professional Regulations in Poland and the U.S.*

The healthcare system and culture in Poland and the U.S. are very different. In terms of economic and political system, Poland had a centrally planned economy with a public healthcare system (strongly hierarchical and centralized based on Soviet-Semashko model) for many years in the past, so the residue of the old-Soviet area still everywhere in the society. On the other hand, the U.S. has had a strong capitalist market economic system where the private healthcare is predominant. Poland transitioned officially from the communist system to a democratic-capitalist structure in 1989, but in some circles the old communist ideology still looms as the Polish governing ideal as well as in some people's minds. [Note that we do not make a value judgement here and thus the remark should be taken amorally]. The Semashko model was replaced by a decentralized system of mandatory healthcare insurance.

In Poland, a substantive growth of the pharmaceutical industry began following the government approval of the pharmaceutical advertising in 1993.<sup>19</sup> Currently, Poland is the second largest market economy in Eastern Europe and the sixth largest pharmaceutical market in Europe with a market value of PLN 29.9 billion PLN (\$8.6 billion).<sup>20</sup> By contrast, the U.S. is the world's largest economic power by far and has the largest pharmaceutical market in the world with a value of \$329 billion.<sup>21</sup> Meanwhile, the international pharmaceutical companies such as Johnson & Johnson, Merck, GSK, have strong established presences in both countries.

Poland has its own legal regulations about pharma's marketing and advertisement while aligning its regulation, as a member of the European Union (EU), with the EU's directives. The Polish regulations are generally more stringent than the European Commission Directives (2001/83/EC and 2004/24/EC). According to Polish law, pharma's gifts to an individual physician cannot be worth more than PLN 100 (\$33) and the gifts must show some relevance to medical practice. Also, in Poland, as in the other European countries, pharma's direct-to-consumer advertising (DTCA) is not legally allowed. In 2008, the Polish law banned physicians to meet with pharma reps in their offices during work hours. However, unfortunately, it has not prevented the marketing practice because the law has never been strictly enforced.<sup>22</sup>

In the U.S., the Federal False Claim Act enacted in 1863 was the first legal attempt at the federal level to control pharma's marketing and advertising. In 1938, the Congress passed the Federal Food, Drug, and Cosmetic Act (FDCA) which gave the Food and Drug Administration (FDA) the authority to control the pharma's activity. In 2010, the Physician Payments Sunshine Act (Sunshine Act) as part of the Affordable Care Act (Obama Care) was introduced which required the manufacturers of medical products (medical devices and drugs) reimbursed by the three federal healthcare programs – i.e., Medicare, Medicaid, Children's Health Insurance Program (CHIP) – to report to the Centers for Medicare and Medicaid Services (CMS) about all payments and gifts greater than \$10 given to physicians and teaching hospitals in the form of free travel, research funding, promotional items, speaking fees, meals, etc.<sup>23</sup> The Initial assessment of the newly reported data under the Sunshine Act reveals a clear connection between pharma's payments to physicians and its overall finances.<sup>24</sup>

Concurrently, various U.S. state laws and anti-corruption statutes regulate the pharma's business activities.<sup>25</sup> Because the federal laws are not specific in some areas, e.g. gift-giving, individual states introduce their own regulations. For example, in

<sup>19</sup> *Polish Journal of Law*. Unfair competition. No 47, Pos. 211, 1993.

<sup>20</sup> Control Engineering Polska, „Branża farmaceutyczna w Polsce i na świecie,” accessed Sep. 27, 2017, <http://www.controlengineering.pl/menu-gorne/artukul/article/branza-farmaceutyczna-w-polsce-i-na-swiecie/>; Pharmaexpert, accessed Sep. 27, 2017, <http://www.aptekarzypolski.pl/2016/01/grudzien-2015-16-rok-2015-48/>

<sup>21</sup> IMS Health, accessed Sep. 27, 2017, [http://www.imshealth.com/deployedfiles/imshealth/Global/Content/Corporate/IMS%20Health%20Institute/Reports/US\\_Use\\_of\\_Meds\\_2013/2013\\_Medicine\\_Spending.pdf](http://www.imshealth.com/deployedfiles/imshealth/Global/Content/Corporate/IMS%20Health%20Institute/Reports/US_Use_of_Meds_2013/2013_Medicine_Spending.pdf).

<sup>22</sup> Marta Makowska, “Polish physicians' cooperation with the pharmaceutical industry and its potential impact on public health,” *Plos One* (2017) DOI: 10.1371/journal.pone.0184862; *Polish Journal of Law*. Pharmaceutical Law. No 126, Pos. 1381, 2001; *Polish Journal of Law*. Pharmaceutical Law. No 45, Pos. 271, 2008.

<sup>23</sup> *American Society of Clinical Oncology*, “Policy for Relationships with Companies,” *Journal of Clinical Oncology*, (2013) 31: 2043-2046.

<sup>24</sup> Anthony DelConte, George P. Sillup, and A.J. Stagliano, “Is there ‘sunshine on a cloudy day’; early empirical results from a study of reporting under the national physician payment transparency program” (presentation, Northeast Business & Economics Association (NBEA) Conference, Jamaica, NY, November 6-8, 2015.)

<sup>25</sup> Krakov, Davar, *USA – Pharmaceutical Advertising 2017*

Minnesota, pharma cannot give physicians gifts worth more than \$50 during a calendar year.<sup>26</sup> In sum, these combinations of the federal and state laws in the U.S. have been, say, somewhat effective but only slightly deter pharma's influence on physicians.

Speaking about self-regulation within professional organizations, in Poland, the Employers' Association of Innovative Pharmaceutical Companies (INFARMA) published guidelines to insure the transparency about the benefits that physicians get from pharma. However, the guidelines by the professional organization do not have a legally binding force. Also, they have been deemed largely ineffective or incomplete, for physicians must agree before data are published by INFARMA. According to their report, only 22% of physicians agreed to disclose what they received in 2016 and the information was gathered only by INFARMA member companies.<sup>27</sup> Some of the EU countries, e.g., France and Slovakia, have transparency guidelines as legal regulations similar to those of the Sunshine Act in the U.S. However, in Poland, the transparency guidelines fall under the area of self-regulation. The self-regulating guidelines, especially those crafted by the internal stakeholders, can be a deterrent to a certain degree though it may not be effective. But above all, it is viewed as a kind of ethics showcase which makes the government avert its attention to the transparency issue so that the guidelines would not become legal requirements.

In the U.S., compared to Poland, the ostensive self-regulating measures by pharma and professional medical organizations are more visible.<sup>28</sup> In the U.S., the pharma's trade association, the Pharmaceutical Research and Manufacturers' Association, and physicians' organizations have their own versions of ethics code. However, it is difficult to believe that these internal ethics guidelines have any efficacy. Accordingly, in brief, while the regulations and guidelines on pharma are relatively different in both countries, neither country possesses an effective legal and ethical mechanism that blocks pharma's marketing influence on physicians.

### **B. Pharmaceutical Marketing to Medical Students and Professional Regulations in Poland and the U.S**

Both in the U.S. and Poland, there are no laws specifically defining or regulating the relationship between pharma and medical students.<sup>29</sup> However, in the U.S., there are some guidelines from professional medical organizations that address the ethical engagement between the medical students and pharma. The medical institutions, like the American Association of Medical Colleges (AAMC), National Academy of Medicine (formerly the Institute of Medicine) and the American Medical Student Association (AMSA), have issued ethical guidelines concerning how medical schools should interact with pharma. For example, the AAMC guidelines state that medical schools should establish policies to prohibit acceptance of gifts by medical students from pharma. The AMSA has also devised the "Pharmfree Scorecard" that lists the rankings of medical schools' conflict of interest policies with pharma.<sup>30</sup> However, the professional ethics policies and guidelines are preventive efforts, not monitoring devices over medical schools or medical students. It is entirely up to an individual medical school to decide whether to include them in its curriculum design or even pay attention to them. Meanwhile, there has been historically a long-standing relationship between medical students and pharma in the U.S. Thus, it is undeniable that the pharma's aggressive marketing on the students which establishes the future bias of medical students in favor of the pharma is always winning the game.<sup>31</sup>

## **III. METHOD**

The research was conducted using an anonymous, self-administered questionnaire with medical students in Poland and the U.S. All study participants were asked the same main eight questions. [The database and questionnaire are available on the figshare <https://doi.org/10.6084/m9.figshare.5067364.v1>]. Most questions were in the form of statements to which students could reply:

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<sup>26</sup> David Grande, "Limiting the influence of pharmaceutical industry gifts on physicians: self-regulation or government intervention?" *Journal of General Internal Medicine* (2010) 25: 79-83.

<sup>27</sup> INFARMA, accessed Sep. 27, 2017, <http://en.infarma.pl/ethics/disclosure-code/>.

<sup>28</sup> Marta Makowska, *Etyczne wyzwania współpracy studentów medycyny z przemysłem farmaceutycznym. Studium porównawcze sytuacji w Polsce i USA* (Warszawa: Wydawnictwo SGGW, 2016), 86.

<sup>29</sup> Krakov D.A., Davar M., "USA – Pharmaceutical Advertising 2017", *International Comparative Legal Guide*, accessed Oct. 16, 2017, <https://iclg.com/practice-areas/pharmaceutical-advertising/pharmaceutical-advertising-2017/usa#chaptercontent1>.

<sup>30</sup> AMSAScorecard, accessed Oct 23, 2017, <http://amsascorecard.org/>.

<sup>31</sup> Kristin E. Austad, Jerry Avorn and Aaron S. Kesselheim, "Medical Students' Exposure to and Attitudes about the Pharmaceutical Industry: A Systematic Review," *Journal of General Internal Medicine*, May 24, 2011, <https://doi.org/10.1371/journal.pmed.1001037>.

strongly agree, somewhat agree, and somewhat disagree or disagree. For some questions, students were to answer: “yes,” “no,” or “don’t know.” One question was given in a multiple-choice format. And the questionnaire also included five questions referring to particular demographics. The questionnaire was based on a pilot study completed in Poland with medical students as well as on some information obtaining from previous research elsewhere outside Poland. For the research, two cities were chosen, Warsaw in Poland and Philadelphia (Pennsylvania) in the U.S. Both cities are historically known as “university cities” with a great number of university students including medical students. Also, it should be noted that responses were only from the medical students who had completed the questionnaires. Thus, it is a general disclaimer that the research may not serve as a generalized model for all medical students in either Poland or the U.S.

Methodology-wise, a non-probability sampling technique was used as the respondents were invited to participate in the research if they were identified as medical students. Also, the participating students were arbitrarily selected from medical schools in both countries, thereby making it a purposive sample. The medical students were invited to take the survey but not obligated or forced in any manner; they participated voluntarily, not given any remuneration for the survey. Different data collection techniques were used in both countries due to the different academic calendar years that the countries had. In the U.S., online survey was used while students in Poland completed the questionnaires prepared in a hardcopy. Because two different methods of data collection were used, the *mode effect* might occur. A rather small mode effect was anticipated between the in-class and online surveys, which is insignificant in terms of influencing the overall result of the research.<sup>32</sup>

In both countries, the first-year students were excluded from the research because they did not have enough experience of interacting with pharma. In Poland, the study was conducted with the third-year students and onward at the First and Second Faculty of Medicine in the Medical University of Warsaw, where 554 respondents completed questionnaires. In the U.S., the survey was conducted with 451 medical students in Philadelphia studying in their second year and onward at the Temple Medical School, Drexel University College of Medicine, Perelman School of Medicine at the University of Pennsylvania, and Philadelphia College of Osteopathic Medicine.<sup>33</sup> The project aimed to obtain at least 100 students from every selected academic year. For each given year, the projected number of completed surveys was reached or exceeded.

The data were analyzed using IBM SPSS Statistics 22 (a.k.a. PS Imago 4). Calculations were performed separately for each country and analyses were done using the  $\chi^2$  test. To ensure that answers from the students for each year had the same influence on the result, post-stratification weights were created. For the American students, the weighting also considered the respondent’s school. Table 1 is a summary of the respondents after the weighting procedure.

Table 1 Summary of Respondents after Weighing Procedure.

Characteristics	USA		Poland	
	%	N	%	N
Sex				
Female	55.7%	251	60.8%	336
Male	44.3%	200	39.2%	217
Sum	100%	451	100%	553
Year of study				
Second	34.1%	154		
Third	31.9%	144	26.2%	145
Fourth	34.1%	154	24.8%	138
Fifth			24.2%	134
Sixth			24.8%	137
Sum	100%	452	100%	554
School				
Medical University of Warsaw			100%	554
Temple University School of Medicine	23.2%	105		

<sup>32</sup> Carolin G. Fieldman, *Course Evaluation Surveys: In-class Paper Surveys versus Online Surveys* (Boston: Proquest Information and Learning Company, 2008), 244-255; Rosemary J. Avery et al., “Electronic Course Evaluations: Does an Online Delivery System Influence Student Evaluations?” *Journal of Economic Education* (2010) 37: 30-32.

<sup>33</sup> The difference in the surveyed years is due to the fact that medical study in Poland lasted six (6) years and medical study in the U.S. lasted four (4) years.

Drexel University College of Medicine	29.9%	135		
Perelman School of Medicine at the University of Pennsylvania	18.2%	82		
Philadelphia College of Osteopathic Medicine	28.7%	129		
Sum	100%	451		
Sum	100%	451	100%	551

Source: Marta Makowska, *Etyczne wyzwania współpracy studentów medycyny z przemysłem farmaceutycznym. Studium porównawcze sytuacji w Polsce i USA* (Warszawa: Wydawnictwo SGGW), 189.

IV. RESULTS

The results provide informative perspectives about the differences between U.S. and Polish medical students toward the pharmaceutical industry and are categorized by answers to the five following research areas:

- (1) Comparison of medical students’ views about their contact with pharma
- (2) Types of interaction medical students have with the pharmaceutical industry
- (3) Differences in attitudes about accepting gifts from pharma
- (4) Preparation by medical schools for their students for contact with pharma
- (5) Trust in information provided by the pharmaceutical industry

**(1) Comparing Students’ Views about Contact with the Pharmaceutical Industry**

The Polish and U.S. medical students were asked what they thought about the different forms of contact they had with pharm reps. About a quarter of U.S. students (26.0%) and about the same number of Polish students (27.8%) thought that interacting with pharma reps should be a part of their education. Similarly, Polish and U.S. students (35.6% and 32.0%) thought that they should have contact with pharmaceutical sales representatives (PSRs) or pharma reps. More students from Poland (74.0% vs. 61.6%) believed that they should have the right to perform paid work for pharmaceutical companies (p<.001). There was also more agreement in Polish students (76.7% vs. 62.7%; p<.001) with the statement “If I got a textbook for free, I would not mind if that textbook had a pharmaceutical company logo on every page.”

**(2) Types of Interaction with the Pharmaceutical Industry**

More U.S. students (41.0%) talked with PSRs about their company’s drugs than Polish students (37.5%), but there was not a statistically significant difference between the two groups. Interestingly, Polish students talked with pharma reps about personal issues more often (10.0% vs. 5.8%; p<.01). Over half of Polish students and about a third of the U.S. students participated in educational meetings hosted by the pharmaceutical industry (52.5% vs. 34.6%; p<.001); students in their final year of study participated at even a higher level (65.7% vs. 58.8%). Polish students accepted gifts from pharma significantly more than U.S. students did (49.1% vs. 21.5%; p<.001) though almost none of the medical students from both countries had worked for pharma or was granted a scholarship or received any financial support for their education from pharm. Please see Table 2 for the summary of the results.

Table 2 - Polish and U.S. Students’ Interaction with the Pharmaceutical Industry

Did you during your studies:	All Students			Final Year of Study		
	Poland (N=552)	USA (N=451)	$\chi^2$	Poland (6th year) (N=137)	USA (4th year) (N=154)	$\chi^2$
1. Talk with pharmaceutical representative about drugs.	37.5%	41.0%		43.8%	75.3%	$\chi^2 = 30.1, df = 1 p=.01$

2. Talk with pharmaceutical representative about personal issues.	10.0%	5.8%	$\chi^2 = 5.9, df = 1$ $p=.01$	9.6%	11.7%	
3. Work as pharmaceutical representative.	0.02%	0.09%		0.7%	0.6%	
4. Participate at the lecture, seminars, presentation, or other educational meeting organized by the pharmaceutical company.	52.5%	34.6%	$\chi^2 = 32.4, df = 1$ $p<.001$	65.7%	58.8%	
5. Receive any gift from pharmaceutical company.	49.1%	21.5%	$\chi^2 = 81.3, df = 1$ $p<.001$	59.9%	36.6%	$\chi^2 = 15.6, df = 1$ $p<.001$
6. Receive scholarship or any other financial support in the education from the pharmaceutical company.	1.4%	0.7%		1.5%	0.6%	
Total	100%	100%		100%	100%	

**(3) Differences in Attitudes about Accepting Gifts**

More U.S. students (17.1% vs. 13.1%) declared that they would not accept any gift from pharma ( $p<.05$ ). It seemed to turn out that medical schools’ policy had an influence on their students. Based on the 2013 AMSA Scorecard, the U.S. medical schools with the strictest policies about relationships between students and the pharmaceutical industry had the highest percent of students (26.8%) who refused to accept any gift. Conversely, the schools with the weakest policies had the lowest percent (8.5%). The difference among the four U.S. schools was statistically significant ( $p<0.05$ ).

The students who declared that they were willing to take gifts from pharm were asked what kind of gift they would accept. Small gifts, like pen or notebook, were viewed acceptable by more American students (73.0% vs. 68.4%). In addition, more U.S. students were open to accept industry invitations for meals than Polish students (46.9% vs. 19.7%;  $p<.001$ ). The U.S. and Polish medical students differed in their propensity to accept expensive gifts unrelated to medical practice, e.g., vintage wine (17.5% vs. 13.5%,  $p<.05$ ). American students were more willing to accept money but that finding was not statistically significant. Polish students were more inclined to accept tickets for shows or expensive items for their medical practice, such as a stethoscope with a company logo on it.<sup>34</sup> See Figure 1 for a depiction of these results.

In response to three choices about accepting gifts, only gifts related to their medical study, “other gifts” not related to their study or not accepting any gifts, Polish and U.S. students varied in their responses. A larger number of Polish students declared that they would only accept gifts related to their education, e.g., medical books and registration fees for conferences, than their U.S. counterparts. Conversely, more U.S. medical students were unwilling to accept any gifts from the pharmaceutical industry. Interestingly, more U.S. medical students were also willing to accept “other kinds of gifts,” the details of which are shown below, than their Polish counterparts. These different gift-acceptance behaviors are shown in three groups in Figure 2.

**(4) Preparedness for Interaction with the Pharmaceutical Industry**

The vast majority of Polish (87.6%) and American medical students (78.7%) did not feel their education prepared them well for ethical interaction with pharma. When asked how well they are prepared to interact with pharma in an ethically conscientious manner throughout their study in the medical school, the result shows that Polish students received much less education than U.S. students. Additionally, U.S. students answered that they gained increasing awareness during each year of study. Conversely, Polish students had a difference between their third and fourth years of study<sup>35</sup> but their fifth and sixth years were almost the same as their fourth year. These results suggest that Polish medical students are not as much prepared for the interaction with pharma as the American students, largely due to absence of education about the interaction in their curriculum. In the questionnaire, for

<sup>34</sup> In U.S. version of the questionnaire the word “brand” was replaced with “brand electronic” this was done to have similar value for the students.

<sup>35</sup> Ethics classes are during the fourth year of study.

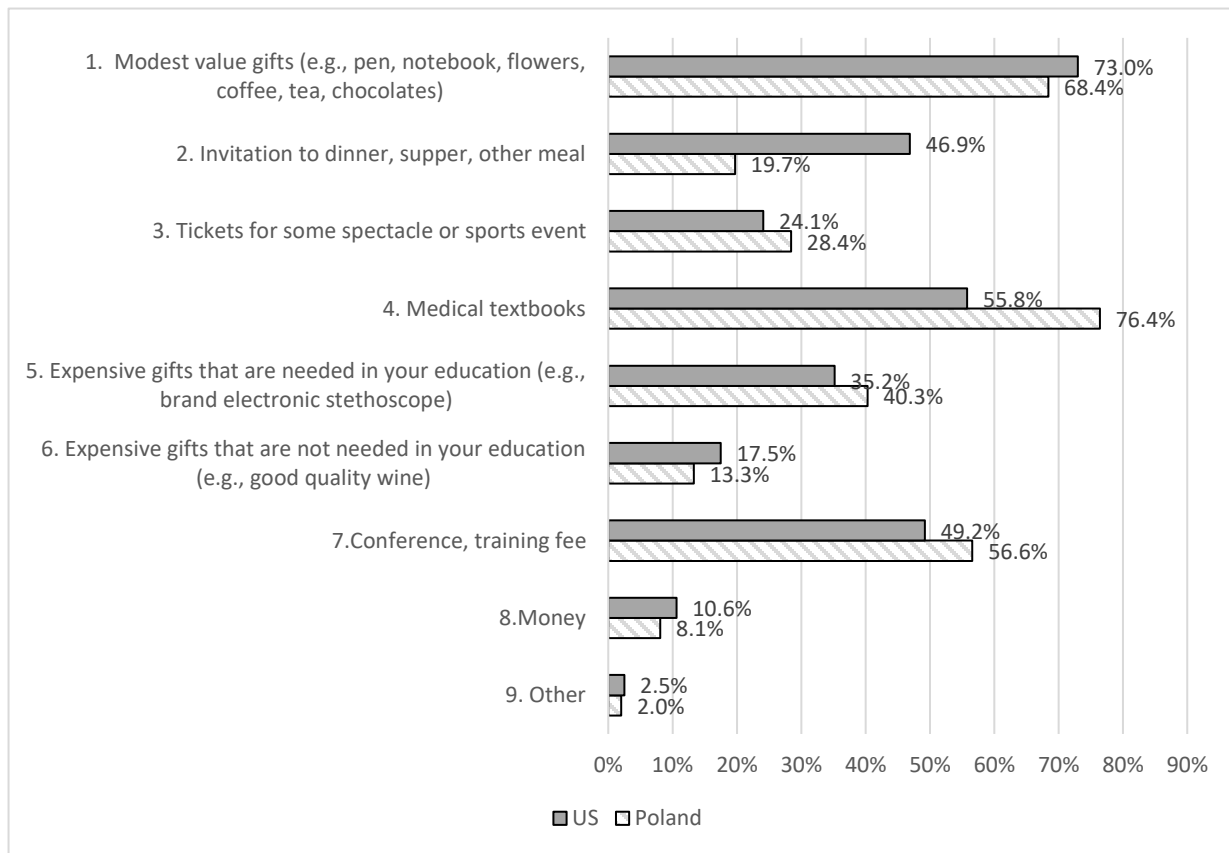


example, students were asked “Which of the statements are true or false? Through your study in the medical school so far, I have learned: 1. How to look critically at marketing materials of pharmaceutical companies (Yes/No).” This and other differences about preparedness for the interaction with pharma are depicted in Figure 3.

**(5) Medical Students’ Trust of Information Provided by the Pharmaceutical Industry**

Polish and U.S. medical students were asked whether they agreed or disagreed with the statement, "Information about drugs coming from pharmaceutical companies is credible." Polish students were decidedly more skeptical than American students (34.3% vs. 44.0%;  $p < .001$ ).

Figure 1 Difference in Willingness to Accept Non-Medical Gifts



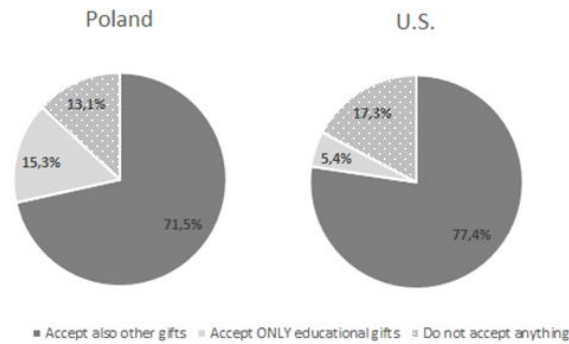
N.B. The values of individual categories do not add up to 100% because respondents could select all answers. PL: N=541; USA: N=451. 2)  $\chi^2 = 82,7$ ,  $df = 1$ ,  $p < .001$ ; 4)  $C\chi^2 = 46,9$ ,  $df = 1$ ,  $p < .001$ ; 6)  $\chi^2 = 3,4$ ,  $df = 1$ ,  $p < .05$ ; 7)  $\chi^2 = 5,3$ ,  $df = 1$ ,  $p = .01$ .

Source: Marta Makowska, *Etyczne wyzwania współpracy studentów medycyny z przemysłem farmaceutycznym. Studium porównawcze sytuacji w Polsce i USA* (Warszawa: Wydawnictwo SGGW), 211.

**V. DISCUSSION AND SUGGESTION**

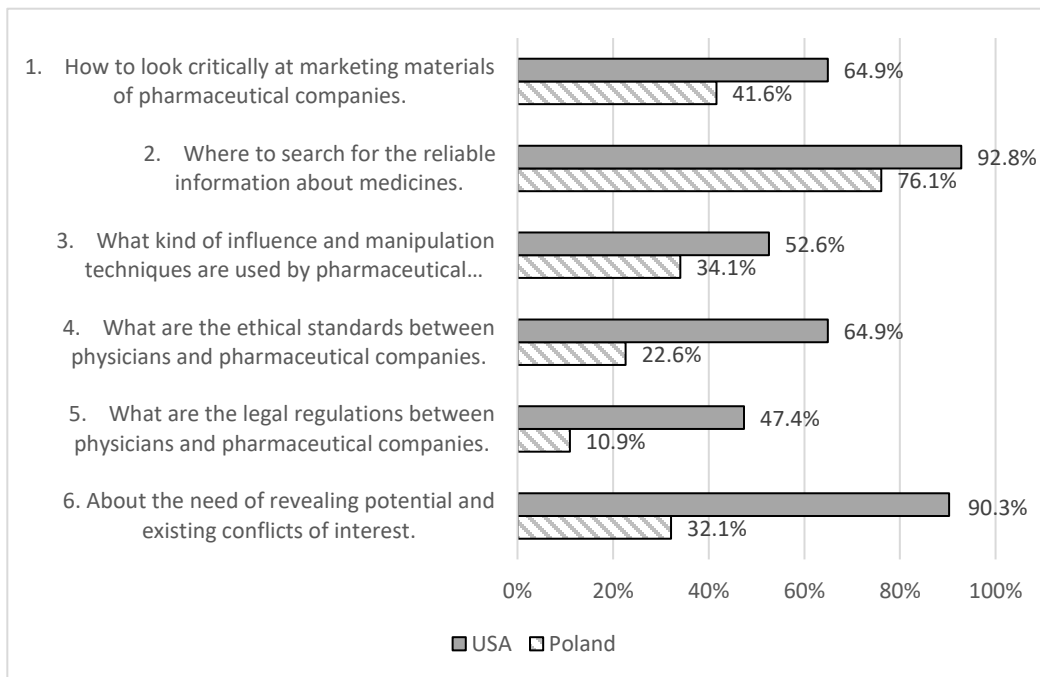
The results which obtained based on the five different areas seem to invite an interesting debate. First, when comparing the medical students’ views about pharma, there was a significant difference between Polish and American students’ attitudes about doing paid work for the industry. Polish students exhibited a more favorable attitude than American students; the Polish students were more

Figure 2 Comparison of Gift-Acceptance Behaviors



PL: N=541, USA: N=446,  $\chi^2 = 26.3$ ,  $df = 1$   $p < .001$ .

Figure 3 – Preparedness for Interaction with Pharma by Medical Students in their Final Year of Study (6<sup>th</sup> in Poland, 4<sup>th</sup> in U.S.)



PL: N=137, USA: N=154, 1)  $p < .001$ , 2)  $p < .001$ , 3)  $p = .001$ , 4)  $p < .001$ , 5)  $p < .001$ , 6)  $p < .001$

Source: Marta Makowska, *Etyczne wyzwania współpracy studentów medycyny z przemysłem farmaceutycznym. Studium porównawcze sytuacji w Polsce i USA* (Warszawa: Wydawnictwo SGGW) 222.

willing to work for pharma (74.0% vs. 61.6%;  $p < .05$ ). What is more, further analysis, showed that Polish students more often agreed that physicians should be able to perform paid work for the pharmaceutical industry or get support to attend conferences or training.<sup>36</sup>

<sup>36</sup> Marta Makowska, *Etyczne wyzwania współpracy studentów medycyny z przemysłem farmaceutycznym. Studium porównawcze sytuacji w Polsce i USA* (Warszawa: Wydawnictwo SGGW, 2016), 232.

Second, there was also a difference between the types of interaction medical students in the U.S. and Poland had with the pharmaceutical industry. All of the U.S. students talked with pharma reps slightly more than Polish students (41% vs. 37.5%), but on the last year this difference was much bigger (75.3% vs. 43.8%;  $p < .001$ ). Polish students were more inclined to discuss personal issues (5.8% vs. 10.0%;  $p < .01$ ), the difference was much smaller the last year (9.6% vs. 11.7%). The fact of moving the private topics can lead to manipulative relationships with the reps based on the liking principle.<sup>37</sup>

A significant difference was also found about attending medical meetings organized by pharma between Polish and American students (52.5% vs. 34.6%,  $p < .001$ ). The numbers became higher in the students' final year of study for medical meeting attendance (65.7% vs. 58.8%) and a larger number of Polish respondents also admitted they already accepted gifts from pharma (49.1% vs. 21.5%,  $p < .01$ ). These behaviors may be explained by a greater financial need for Polish students compared to their American counterparts. Although medical education is free in Poland, Polish students have a greater need for additional finances, especially those who were unable to secure a grant to support their study. Furthermore, there is a great difference in salaries between Polish and American doctors (roughly estimated \$17,500 vs. \$140,000).<sup>38, 39</sup> Comparing the two countries' GNP and GDP indices, there is a substantial difference.

Third, students were also asked: "Right now as a student, would you be likely to take a gift from the pharmaceutical company's representative?" A reasonably high percent of both U.S. (17.1%) and Polish students (13.1%) answered that they would not accept such gifts ( $p < .05$ ). These findings may be influenced by the laws and guidelines in the respective countries as well as school policy. As mentioned earlier, U.S. students from schools with the strictest policies more often refused to accept any gift (26.8%). Conversely, those from schools with weakest policies accepted gifts (8.5%). It is worth mentioning here that there was no internal regulation concerning cooperation of student or staff with the pharmaceutical industry in any Polish medical school in 2013. As stated earlier, Polish law prohibits physicians from accepting any gifts not related to medical practice ( $> \$33$ ), while the U.S. regulates the behavior through the PhRMA Guidelines and Sunshine Act, which is less stringent than the Polish law on this issue.<sup>40</sup>

It should be noted that acceptance of gifts may vary from culture to culture. However, regardless of the cultural difference, it is a psychological *fait accompli* that gift-acceptance creates an ethical dilemma for the recipients. This is especially true when an influential organization like pharma offers a gift with an intention to influence prescribing behaviors of the future physicians.<sup>41</sup> Thus, it is commendable that the law of both countries put a certain legal rein, at least, on the physicians' receipt of the straightforward gifts which may exhibit a warning sign for the future physicians.

Fourth, concerning an invitation to a meal, the American and Polish students' responses were respectively quite different (46.9% vs. 19.7%;  $p < .001$ ). While the results indicated that American medical students were more open to accept pharma invitations for meals than Polish medical students, the questionnaire did not expand the question to learn details about the scope of the invitations. The invitations may have been a private one-on-one dinner with pharma reps, or a luncheon/dinner lecture sponsored by pharma, or a free dinner coupon following the conversation with the reps. about the pharmaceutical products. However, it is strongly presumed that the difference is indicative of a socio-cultural difference. For example, American university students including the medical students are generally used to the practice of corporate "meet and greet" networking based around meals and thus are more likely to accept any types of meal invitations from pharma. By contrast, eating at restaurants is not popular in Poland; 95 percent of Poles eat their main meal at home,<sup>42</sup> which is drastically different from the American dining culture.

An invitation to a meal is indeed a subtle form of gift because it suggests a lot more things beyond the straightforward gift because the food provides an opportunity for sustained interaction. In fact, having meals together with pharm reps is particularly the part-and-parcel method that the pharma uses for relationship marketing. As mentioned above, the pharma's marketing strategy has become more personal. The pharma reps can establish relationships slowly and steadily with the medical students through

<sup>37</sup> See more: Robert B. Cialdini, *Influence: The Psychology of Persuasion* (USA: Harper Collins World, 2007) 167-207.

<sup>38</sup> Diagnoza społeczna, "Warunki i jakość życia Polaków," accessed Sep. 27, 2017, [http://www.diagnoza.com/pliki/raporty/Diagnoza\\_raport\\_2015.pdf](http://www.diagnoza.com/pliki/raporty/Diagnoza_raport_2015.pdf); Physician/Doctor, "General Practice Salary", accessed Sep. 27, 2017, [http://www.payscale.com/research/US/Job=Physician\\_%2F\\_Doctor,\\_General\\_Practice/Salary](http://www.payscale.com/research/US/Job=Physician_%2F_Doctor,_General_Practice/Salary)

<sup>39</sup> European Funding Guide, accessed Sep. 27, 2017, <http://www.european-funding-guide.eu/articles/grants-and-loans/grants-and-loans-poland>.

<sup>40</sup> *Code of Interaction with Healthcare Professionals*, PhRMA. (Washington, DC: PhRMA, 2008); Sillup, Trombetta, and Klimberg, The 2002 Pharma Code.

<sup>41</sup> Karl Smith, "The Ethical Dilemma in Business Gifts: Giving or Bribery?" accessed Sep. 27, 2017, <https://www.linkedin.com/pulse/20140716125123-14373257-the-ethical-dilemma-in-business-gifts-giving-or-bribery>.

<sup>42</sup> CBOS, "Zachowania żywieniowe Polaków," accessed Sep. 27, 2017, [http://www.cbos.pl/SPISKOM.POL/2014/K\\_115\\_14.PDF](http://www.cbos.pl/SPISKOM.POL/2014/K_115_14.PDF).

repeated meal sharing. In the end, after the students start practicing as physicians, it is greatly difficult for them not to pay back all the benefits they got from the reps whom have become their friends already. The only way they can pay them back is writing prescriptions for them. Thus, a stronger policy seems needed at the school level, if not legislative level, for the students not to fall into the powerful yet subtle trap like the pharma's relationship marketing.

Fifth, concerning how well the medical schools have prepared their students for the ethical interaction with pharma, the majority of medical students, Polish (87.6%) and American (77.7%) students, did not believe that their schools or programs did a good job at all, which is consistent with the research conducted in the past.<sup>43</sup> Albeit the repeated concerns and talks in American medical schools about their education about interaction with pharma, the result seems to suggest a need for a different solution. One viable option is to build the education curriculum around what is found in AMSA's statement, "Evidence and Recommendations for a Model PharmFree Curriculum," which categorizes how to change medical school curriculum by incorporating the understanding of potential conflicts of interest, recognizing how pharma can influence patient care, learning how to manage the physician-pharma relationship, and being aware of possible patient and societal benefits.<sup>44</sup> On the other hand, for Polish students, the result is not surprising because there is absence of any education about it. For the Polish medical schools, we suggest that, more urgently, they should work with the practicing physicians to design the ethics policies and education curriculum. Note that physicians in Poland are situated in a specific economic and cultural situation. Moreover, it suggests that Polish medical schools should draw upon the policies developed by the U.S. medical schools and organizations because our research indicated that pharmaceutical marketing directed to students in both countries is similar. Inspecting the AMSA PharmFree (pharfree.org) can be an interesting and important point of departure.

Lastly, regarding what the medical students believe about the credibility of information from pharma, the fact that 34.3% of the Polish students and 44% of the American students believed that information provided by the pharmaceutical industry was credible ( $p < .001$ ) confirms the recent studies indicating that U.S. students may have greater confidence in the information.<sup>45</sup> We argue that the responses from the Polish students is indicative of the influence of the former communist regime in Poland during the time of which there was limited trust in any information.<sup>46</sup> In the current Polish society, there is indeed lack of trust in general. According to a 2014 study, two-thirds of Polish citizens answered that they did not trust others. "The average value of the index for all respondents was - 0.79; indicating that distrust and a cautious attitude toward others is pervasive and outweighs the ratio of openness and trusting" in Poland.<sup>47</sup> Note also that a recent World Value Survey has reported that 38.2 percent of Americans believes that most people can be trusted, compared to 22.3 percent of Poles who have answered the same way<sup>48</sup>, which may not be a bad thing when it comes to interacting with the pharmaceutical industry.

## VI. CONCLUSION

The importance of the medical schools' ethics policy and education about interacting with pharma is emphasized. As shown above, in the U.S., students from the medical schools with the strongest restrictive policies about interaction with pharma tend to have the corresponding restrictive attitude towards pharma. Also, a better education is needed to cope ethically with pharma reps in particular and pharma in general, as most students feel ill-prepared for the interaction. We believe that this research is particularly important for the Polish scholars and professionals because it is the first study of this kind in Polish academia and professional healthcare field. Also, since the survey was conducted among American medical students cooperatively with the Polish students, it calls for comments and responses by broader audiences in both countries. Lastly, given that this study is not representative of all medical students in Poland or in the U.S., a further research should proceed, particularly with qualitative approaches, such as focus

<sup>43</sup> Brian Hodges, "Interactions with the Pharmaceutical Industry: Experiences and Attitudes of Psychiatry Residents, Interns and Clerks," *Canadian Medical Association Journal* (1995) 153: 553-559; Michael S. Monaghan et al., "Student Understanding of the Relationship Between the Health Professions and the Pharmaceutical Industry," *Teaching and Learning in Medicine* (2003) 15: 18; Sierles et al, *Medical Students' Exposure*, 1038.

<sup>44</sup> American Medical Student Association, "Evidence and Recommendations for a Model PharmFree Curriculum," accessed Sep. 27, 2017, <https://www.amsa.org/wp-content/uploads/2015/03/ModelPharmFreeCurriculum.pdf>.

<sup>45</sup> Sierles et al, *Medical Students' Exposure*, 1037; Austad, Avorn, and Kesselheim, *Medical Students' Exposure*, 3; Wazana, *Physicians and the Pharmaceutical Industry*, 375; Makowska, *Interactions between Doctors*, 351.

<sup>46</sup> Piotr Sztompka, "Trust and Emerging Democracy Lessons from Poland," *Intonational Sociology* (1996) 11: 37.

<sup>47</sup> CBOS, "Zaufanie w relacjach międzyludzkich," accessed Sep. 27, 2017, [http://www.cbos.pl/SPISKOM.POL/2014/K\\_029\\_14.PDF](http://www.cbos.pl/SPISKOM.POL/2014/K_029_14.PDF)

<sup>48</sup> Our Word in Data, accessed Sep. 27, 2017, <https://ourworldindata.org/trust>.

group interviews, to gain a more comprehensive understanding of the relationship between medical students and pharma. Furthermore, it is important to conduct comparable analytic research in a diverse cultural context, e.g., Japan, Venezuela, United Arab Emirates, to identify different types of marketing tactics used with medical students and to assess how they influence medical students in a specific economic and cultural environment.

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