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INTRODUCTION The framework for action on interprofessional education and collaborative practice states that the interprofessional team can provide a more comprehensive approach to managing and preventing disease. Therefore, collaborative processes and practices between physicians and pharmacists are essential to improve patient outcomes1,2. However, collaborative practice has not been fully implemented3,4. The lack of collaboration between health workers teams is also based on the Interprofessional Education process, which has not been widely implemented in the university learning curriculum5.

The curriculum preparation process must be reviewed and evaluated to determine whether the learning goals to be achieved are appropriate or otherwise6. One way to evaluate interprofessional education learning is to conduct research related to student's collaboration attitudes7. The interprofessional education process should have been widely implemented in various universities around the world. Kuwait University Health Sciences Center (HSC) in Kuwait is one of the universities that has applied interprofessional education-based learning since 20055.

The success of the university's learning process is measured through the collaborative attitudes of every pharmacy and medical student. Students are given a questionnaire to measure using the scale of collaborative attitudes and illustrate their responses whether they agree or strongly agree on the survey statement, reflecting a positive attitude towards the collaborative relationship between physicians and pharmacists as well as setting aside gaps that are a barrier in the implementation process5. Pratiwi et al.8

also reported that each health worker can provide interventions related to patient treatment decision-making through mutual consideration in interprofessional education. Research related to the interprofessional education learning process evaluation is essential to determine the implementation process's success. The evaluation process can be carried out by researching student attitudes towards interprofessional education activities. Setiadi et al.9

had similar research, but the study was only one side view from pharmacy students' background perspective about collaboration with the physician. Therefore, study about views from both perspectives (pharmacy and medical students) urgently needs to be done. Research on students' attitudes in medical education and pharmacy study programs is also expected to be a guideline for the interprofessional education curriculum drafting team at the Faculty of Medicine, Universitas Islam Sultan Agung, Semarang, to develop interprofessional education learning activities in the future.

Hence, the purpose of this study was to measure attitude differences of undergraduate

pharmacy and medical students toward physician-pharmacist collaboration after interprofessional education activities. MATERIALS AND METHODS Materials Data collection in this study was carried out by using a google form online questionnaire and could be accessed in https://bit.ly/SkripsiFutikha2020. Methods This research was an observational analytic study with cross-sectional methods because the independent and dependent variables were obtained simultaneously.

The independent variables in this study were students of medical and pharmacy education, with collaboration attitudes as the dependent variable. The research process begins after obtaining ethical approval. Ethical clearance in the study has been reviewed by the Medical/Health Research Bioethics Commission, Faculty of Medicine, Universitas Islam Sultan Agung, as listed with number 283/VIII/2020/Ethics Committee. The research implementation gives the respondents freedom in terms of availability and complete information that refers to research activities that were described in full.

All information obtained from respondents was kept confidential and only used for research purposes. The confidentiality of the respondent's name also was maintained by not including the respondent's name. Informed consent was given and clearly stated to respondents in order to protect the respondent's rights. Several things were explained to the respondent, such as the purpose of the research and the research contents. Faculty of Medicine, Universitas Islam Sultan Agung applied student-based learning in their curriculum (therefore, department of pharmacy and medical apply module system).

In 2020, the interprofessional education module was not designed yet by the curriculum team in the faculty. Consequently, in applying interprofessional education agenda activities in faculty, every department must conduct a meeting and search for a theme that the medical department and pharmacy department had in the common topic area in their module, which was held simultaneously. Moreover, it could be concluded that the respiration module of the medical student class of 2018 has the same topic area as the community module of the pharmacy student class of 2016.

Hence, the study population was the medical education students' class of 2018 who took the respiration module and pharmacy students class of 2016 who participated in the community module. Both groups attended the interprofessional education small group discussion (SGD) regarding the case study scenario about the management of tuberculosis on 25 and 29 August 2020 and met the inclusion criteria. The pharmacy and medical students were invited to complete the Indonesian version of the Scale of Attitudes Toward Pharmacist–Physician Collaboration (SATP2C). The questionnaire was translated by Setiadi et al.9

and was initially developed by Van Winkle et al10. This scale includes 16 Likert-type items on a 4-point scale (1: strongly disagree; 2: disagree; 3: agree; 4: strongly agree). All items were directly scored except for the 9th, a reverse-scored item (1: strongly agree; 2: agree; 3: disagree 4: strongly disagree). The respondent could score between 16 and 64. A high score means a more positive attitude about the relationship between physicians and pharmacists. Data analysis was performed using the Mann-Whitney test's discriminability test because the data were not normally distributed.

RESULTS AND DISCUSSION The study was conducted to determine differences in collaboration attitudes between medical and pharmacy students on interprofessional education activities. Respondents in the study were medical students' class of 2018 who entered their 4th semester and pharmacy students' class of 2016 who entered their 8th semester. Pharmacy students of 2018 did not have a subject of pharmacotherapy yet, so the upperclassmen were chosen because they could collaborate with medical students and were eligible for this research.

Both groups participated in the SGD on August 25th, 2020 (SGD 1) and August 29th, 2020 (SGD 2). The data collected during August 2020 was 205 respondents, consisting of 153 medical students' class 2018 and 52 pharmacy students' class 2016. The results obtained were data tabulation, coding, and data entry, followed by normality and homogeneity tests as shown in Table I. The normality test results in the total score of medical and pharmacy students' using Kolmogorov-Smirnov conclude that the data were not distributed normally. The homogeneity test result using the Levene test is a sig value of 0.261, which was more than 0.05. Hence the data was homogeneous. The results did not meet the parametric test requirements, which must be normally distributed and homogeneous. Therefore, a non-parametric test was carried out. Table I.

Normality, homogeneity, and Mann-Whitney Test results of SATP2C score Test _Sig Value _Interpretation _ _Normality: Kolmogorov-Smirnov _Medical Education _0.000 _Not normally distributed _ _ _Pharmacy _0.051 _Normally distributed _ _Homogenity: Levene Test _0.261 _Homogenous _ _Non-Parametric Test: Mann-Whitney Test _0.000 _Significantly different _ _Median of medical students' _47.00 _"Moderate" _ _Median of pharmacy students' _56.00 _"High" _ _ Discriminability test results using the Mann-Whitney Test obtained Asymp Sig. (2-tailed) results of 0.000, which was less than 0.05, means a significant difference in the collaborative attitude between students of medical and pharmacy study programs. The median total score of medical students was 47.00, indicating a "moderate" collaborative attitude because it was in the range of 32-47 value. The median score of pharmacy students is 56.00 indicating a "high" collaborative attitude because it was in the range of 48-64 value.

Therefore, it could be interpreted that the pharmacy students had a more positive attitude towards the collaborative relationship between the two groups. Response analysis of all questions was presented in Table II. Table II. Items question response analysis No _Items _Medical students _Pharmacy students _p-value _ _ _ _mean _SD _Mean _SD _ _ _1 _Pharmacists are qualified to assess and respond to patients' drug treatment needs _2.90 _0.584 _3.65 _0.670 _0.000 _ _2 _Pharmacists can contribute to decisions regarding drug interaction that can affect the patients. _3.04 _0.515 _3.67 _0.480 _0.000 _ _3 _Pharmacists have special expertise in counseling patients on drug treatment. _2.74 _0.489 _3.60 _0.486 _0.000 _ _4 _Pharmacists should clarify a physician's order when they feel that it might have detrimental effects on the patient _3.21 _0.512 _3.63 _0.474 _0.000 _ _5 _Physicians and pharmacists should be educated to establish collaborative relationships _3.34 _0.595 _3.73 _0.491 _0.000 _ _6 _There are many overlapping areas of responsibility between pharmacists and physicians in drug treatment of the patients. _2.73 _0.620 _2.90 _0.569 _0.000 _ _7 _Physicians should consult pharmacists for helping patients with adverse reaction or refractory to drug treatment _2.94 _0.535 _3.52 _0.495 _0.000 _ _8 _Interprofessional relationships between physicians and pharmacists should be included in their professional education programs. _3.24 _0.585 _3.69 _0.495 _0.000 _ _9 _Physicians should be made aware that pharmacists can help in providing the right drug treatment _3.05 _0.596 _3.56 _0.783 _0.000 _ _10 _Both pharmacists and physicians should contribute to decisions regarding the type and dosage of medicine given to the patients. _3.00 _0.473 _3.60 _0.503 _0.000 _ _11 _During their education, pharmacy and medical students should be involved in teamwork in order to understand their respective roles _3.34 _0.535 _3.63 _0.576 _0.000 _ _12 _Pharmacists as well as physicians should have responsibility for monitoring the effects of drugs on the patients _3.15 _0.521 _3.46 _0.486 _0.000 _ _13 _Pharmacists should be accountable to patients for the drug they provide _2.78 _0.515 _3.62 _0.448 _0.000 _ _14 _A physician should be viewed as a collaborator and colleague with a pharmacist rather than his/her superior _3.29 _0.599 _3.54 _0.505 _0.003 _ _15 _Pharmacists should be involved in making drug policy decisions concerning the hospital/pharmacy services upon which their work depends _3.01 _0.510 _3.46 _0.502 _0.000 _ _16 _The primary function of the pharmacist is to fill the physician's prescription without question _2.42 _0.497 _2.77 _0.506 _0.001 _ _ As many as 175 medical students' class of 2018 (response rate 93%) and 60 pharmacy students' class of 2016 (response rate 100%) were able to fill and complete the questionnaire well.

The questionnaire validity test results conducted on 30 respondents consisting of 22 medical students and eight pharmacy students were analyzed by looking at the Pearson Product Moment correlation showed that all items of the 16 questions were valid. The results of the questionnaire reliability test by looking at the Cronbach's alpha value was 0.933. The questionnaire was reliable and classified at the "Very Reliable" level11. The

results of other studies that show significant differences in physician-pharmacist collaboration attitudes were also shown in the results of research by Prado et al12.

The study shows significant differences in the collaborative attitudes of medical and pharmacy students at Federal University of Sergipe, Brazil. Prado et al12 also reported that pharmacy students [total attitude scale score median (SD) 57.5 (4.7)] had a significantly higher collaborative attitude than medical students [total attitude scale score median (SD) 51.1 (6.4)] (p=0.001). Another study by Katoue et al.5 on medical and pharmacy students at the Kuwait University Health Science Center. From the study, it was reported that pharmacy students [total score of attitude scale median (IQR) 58.0 (12.0)] had significantly higher collaborative attitudes than medical students [total score of attitude scale median (IQR) 49.0 (10.0) (p <0.001).

The pharmacy students' collaborative attitude was based on the future aspiration to carry out pharmaceutical practices. It is aspired to make the pharmacists work processes enable high involvement, have an active role in patient's health, and cooperate with other health workers, especially physicians in the patient therapy process13,14. Meanwhile, as part of their professional culture, physicians are trained to be independent and individually responsible for their decisions and actions15,16.

According to the existing tradition, physicians take total responsibility for patient outcomes and are still reluctant to involve other practitioners in the clinical decision-making process17. According to Cunha et al.3 and Vegesna et al.4, the tendency to not seek to have collaborative relationships is also because physicians consider themselves in a higher power hierarchy among other intervention teams. Such circumstances have been confirmed in several multinational studies. Physicians in four countries (Israel, Italy, Mexico, and the United States) have lower scores than nurses on the attitude scale towards physicians and nurses' interprofessional collaboration18.

Another factor that causes medical students' low level of collaboration attitude is the lack of "trust" in pharmacists' role. For example, Prado et al12. points out that pharmacists' patient-centered approach was considered new and underdeveloped. New facts analyzed by Prado et al12. also show that pharmacists' role has not been fully implemented in Brazil, so medical students did not know about the role direction of the pharmacist profession. Hence, introducing collaborative practices between professions during education and graduation is essential to foster a better understanding of the health care team's role19.

Paying further attention to the importance of interprofessional education learning at the Faculty of Medicine, Universitas Islam Sultan Agung, the educational strategy must be

better designed to provide interprofessional learning opportunities. Ideally, the strategy could be delivered using interactive teaching modalities starting at the earliest stages of both academic programs. Medical and pharmacy students can attend interprofessional education to focus on communication and interpersonal skills, analyze ethical issues, recognize and appreciate each profession's roles and responsibilities in patient care20.

Students' involvement in such interactive interprofessional education will improve their teamwork skills, instill mutual respect, and foster a collaborative attitude as future health care professionals, with the ultimate goal of improving patient quality5. Pharmaceutical care has long been integrated into the Faculty of Pharmacy at Kuwait University's curriculum designed to prepare the graduates with clinical knowledge, skills, and a positive professional attitude for patient care practice5. Successful patient nursing practice is oriented towards responsibility, accountability, coordination, communication, cooperation, mutual trust, and respect.

Therefore, these basic principles should also be part of the Interprofessional Education curriculum, where both medical and pharmacy students begin to learn the concepts21. Understanding and learning the values of various professions and disciplines is an essential component of the Interprofessional Education curriculum. Students will become more competent in their education, and more significant insight is gained into their roles in the healthcare team. Eventually, students will begin to understand the relationship between the health sciences and other healthcare professions22.

CONCLUSION There is a significant difference in the total collaboration attitudes between medical and pharmacy students (p 0.000). Medical students are in the "moderate" category and pharmacy students in the "high" category. The pharmacy students have a more positive collaboration attitude than medical education students toward future collaborative relationships. It is recommended to conduct research related to physician-pharmacist collaboration obstacles to evaluate the implementation process of interprofessional education.

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