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5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები,ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი,ანათლების შედებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიდრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამული, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი,წელი,ჟურნალის №,პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიდრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა,მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა,რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემაში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

Содержание:

PATIENTS SATISFACTION WITH PAIN MEDICATION: A STUDY OF LABORATORY MEDICINE

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Abstract.

Patients in pain have different levels of satisfaction. The experience of patients regarding medication is based on their past treatment. The mental satisfaction of the patients for laboratory medication is necessary for their health recovery. The satisfaction of patients is a challenge for healthcare institutes to provide better facilities to patients. The goal of this research is to investigate the impact of taking patch pain medication, taking oral pain medication, and taking intravenous medication on patients' satisfaction with laboratory pain medication. The model of this research is based on the gap in the literature. 645 responses were considered for data analysis with Smart PLS 3.0 for study findings. The findings disclosed the impact of taking patch pain medication, taking an oral medication, and taking intravenous medication is significant on patients' satisfaction with laboratory pain medication. The study has theoretically enriched the literature with a unique contribution to the study model. Practically, the study has discovered the ways the healthcare sector can improve the satisfaction of patients for their better health and satisfaction. The future directions highlighted by this study are useful for future studies to contribute to patients' satisfaction with laboratory medication.

Key words. Patch pain medication, oral pain medication, taking intravenous medication, laboratory medicine, patient satisfaction.

Introduction.

The advancement in science has changed the traditional way of healthcare because modern facilities are available to the public [1]. The health sector of every country is working to provide the on-time best medication to people for their injuries and other problems [2]. However, the satisfaction of the patients with their medication is different according to their concepts [3]. Some patients believe that the patch medication is necessary for the relief of pain [4]. Similarly, some patients believe not the patch patients, but oral medication are useful and easy to take for pain [5]. The satisfaction level of the patients is different in their different cases [6]. Also, it is noticed that the satisfaction of patients is also based on their experience which is useful for proper understanding [7]. The medication facilities according to the requirements of patients are necessary for developing their better attitude and learning [8].

Lin, et al. [9] explained oral pain medication as "the medicine that is taken orally is used commonly for relieving pain such as headache, menstrual pain, toothache, back pain, and arthritis." Oral medicine is useful for improving the health of patients and providing them with rapid relief [5]. Xu, et al. [8] explained patch pain medication as "a modern technique of pain management designed to treat chronic pain and other conditions." Patch pain medicine is used on the skin for patients' health in an easy way [3]. The development of medical science has introduced this method of patient health improving [8]. Furthermore, Peeler et al. [10] intravenous medication refer to "giving medicines or fluids through a needle or tube inserted into a vein." Intravenous medication is useful for patients who are in a state of emergency, and they need immediate medication [11]. These three types of medication are widely used all over the world, but each patient has a different perception of the medicine [12].

The existing studies in the literature have discussed different factors of patient satisfaction. Asnawi, et al. [13] explained patients' satisfaction is dependent on the service quality and the image of the hospital in the minds of patients. Javed, et al. [14] discussed patient satisfaction from the health sector quality service factor. Sunder M, et al. [15] reported that patients are satisfied when quality service is ensured by mobile hospitals. Ai, et al. [16] concluded that the patients are satisfied with the environment of the clinic. Furthermore, Nasser, et al. [17] reported that patients in Saudi Arabia are satisfied with telemedicine. Hence, the body of knowledge is evident about the studies that have discussed the satisfaction of patients. Indeed, no particular study up to the knowledge of researchers has discussed the impact of oral pain medication, path pain medication, and intravenous medication on patients' satisfaction with laboratory pain medication.

The study aims to investigate the impact of patch pain medication, oral pain medication, and intravenous medication on patients' satisfaction with laboratory pain medication. Although, the current research is based on a gap that was neglected by the earlier research. The study has developed and contributed a new model of patients' satisfaction with laboratory medicine in the literature. Furthermore, the study is significant as it enhanced the understanding of healthcare institutes' administration to provide appropriate medication to the students. Importantly, the research has developed theoretical and practical implications for patients' satisfaction with laboratory medication that is necessary for improving their living style and standard for improving their health. Meanwhile, future research directions are endorsed based on the limitations of this research that would help the researchers in the future to enhance the model and knowledge of patient satisfaction.

Review of Literature.

The study by Vinik, et al. [18] reported that patch medication can improve the quality of life of patients that makes them comfortable in their routine life. Gudin, et al. [7] demonstrated that path medication is useful for improving the pain of patients.

Xu, et al. [8] reported that for patients of surgery, the patch medication is necessary for better health and recovery. Poirier, et al. [19] reported that most pharmaceutical institutes used to recommend patch medication for better facilities the patients that are useful for their standard of living. Schultz, et al [20] highlighted that patch medications are useful for the patients on their recommendation because most of the patients are addicted to getting the patch medication instead of other ways of treatments. Martins Filho, et al. [3] added that the nicotine patch medication is necessary for improving the quality of pain because these patches are developed to facilitate the patients. Alam, et al. [21] highlighted that the liquid and patch medicines are necessary for patients' satisfaction if these are based on their recommendations. According to Citrome, et al. [22] patch medication is necessary for the patients who are treated by the psychiatry.

Hypothesis 1: There is a positive relationship between taking patch pain medication and satisfaction with laboratory pain medication.

The study by Okumura, et al. [23] highlighted oral medication as useful for patients who are taking oral medication all the time. Anderson, et al. [24] reported that orally taken medicines are useful for improving the health of patients as it is also an appropriate method for pain control. In a clinical study, Peeler, et al. [10] found that most patients of satisfied with oral medicines as they avoid surgery until it is necessary for their health. According to a cancer patients' study by Boons et al. [25], patients are satisfied when they are informed about the positive outcomes of oral medication. Meanwhile, Fabi, et al. [26] reported that the patients feel comfortable when they are orally intaking medicine at the time of injury. Becker, et al. [27] reported that most of the patients in German healthcare institutes are taking oral medication because they consider it useful for their health. Ford, et al. [28] pointed out that patients in hospitals are more satisfied with oral medication as they can take it easy. Furthermore, emphasized that for the quality of life of patients, they need to take oral medication without any side effects.

Hypothesis 2: There is a positive relationship between taking oral pain medication and satisfaction with laboratory pain medication.

A study on patients' satisfaction Charoenpol et al. [11] reported that most patients are less satisfied with intravenous medicine. Furthermore, Apisutimaitri, et al. [29] reported that with morphine the patients are satisfied with intravenous medication treatment. Also, Fenikowski, et al. [30] highlighted that the patients have side effects, but they are still satisfied with intravenous medicine as it provides rapid relief to these patients. Khan, et al. [31] pointed out that for an immediate recovery, the patients are satisfied with intravenous medication as they want quick recovery from it. As highlighted by Ala, et al. [12] patients in the emergency department should be treated with intravenous medicine because of its rapid benefit. Lin, et al. [9] highlighted that patients with cancer are in serious pain, and they require intravenous medications because it provides them with better relief for their living and improves their standard of health. Ventress, et al. [32] reported that the satisfaction of the patients can be changed when they are treated with intravenous

medication. In addition, Vijitpavan, et al. [33] reported that the satisfaction of the patients can be improved in hospital if they are treated with intravenous medication for getting better and rapid relief.

Hypothesis 3: There is a positive relationship between taking intravenous medication and satisfaction with laboratory pain medication.

Methodology.

This research has a different methodology as the survey-based questionnaire was developed to collect the data from the respondents. Similarly, opposite to the healthcare targeted population, this study has collected data from the students at different universities in Brazil, Argentina, Malaysia, and India as the students of these universities visited the hospital for their medical healthcare. To generalize the findings of this research, a cross-sectional survey was conducted, and data was collected from the respondents from August 10, 2023, to August 15, 2023. The "random sampling technique" is used in this research for data collection because the population of the study was large. Furthermore, the random sampling technique is useful for data collection and generalization of study results. The measurement scale for this study is adapted by Evans et al. [34] as the study has developed the scale for oral pain medication, intravenous medication, patient satisfaction, and patch medication. The adapted questionnaire is valid because it is verified by the research experts. 1000 questionnaires were distributed to the respondents and the unit of analysis for this study is "individual". The questionnaires were mailed to the participants after getting their emails from the student portal. 653 respondents of this study filled out the questionnaire, meanwhile, their quarries related to the research were also addressed. For this study, 645 responses were considered for data analysis and the final findings of the study. Specifically, this study has used "Smart PLS 3.0" for data analysis and findings of the study by evaluating the measurement model, structural model, and predictive relevance.

Findings and Analysis.

The "measurement model and structural model" findings are taken for study findings and analysis. According to Ringle, et al. [35] "the purpose of the measurement model is to check the validity and reliability of the findings." The study has identified that the measurement model results are significant as "Cronbach's alpha, factor loadings, composite reliability (CR) and average variance extracted (AVE)" were determined. The threshold for α is 0.70 [35], for factor loadings is 0.60 [36], for CR is 0.70 and for AVE is 0.50 [37]. The findings of this study are significant because all thresholds of "reliability and validity" are achieved. The findings of validity and reliability are demonstrated in Figure 2 and Table 1.

This research has used the "Heteritrait-Monotrait (HTMT)" method for discriminant validity checks. According to Ab Hamid, et al. [38] "discriminant validity is tested for determining the distinction between study findings." A method of HTMT proposed by Gold, et al. [39] is employed in this research. Also, Gold et al. [39] recommended the threshold of "HTMT < 0.90." The findings of discriminant validity are available in Table 2.
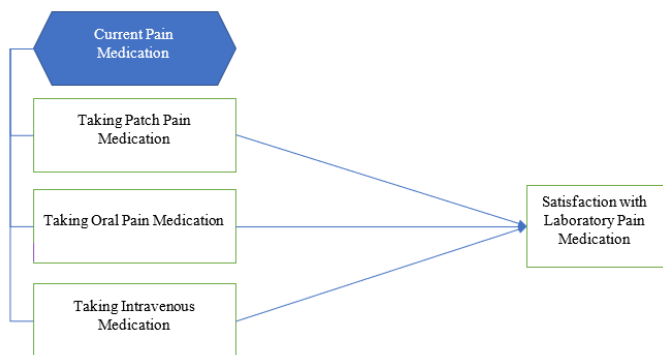
Figure.1. *Theorized framework explaining the relationship of current pain medication types with satisfaction with laboratory pain medication.*
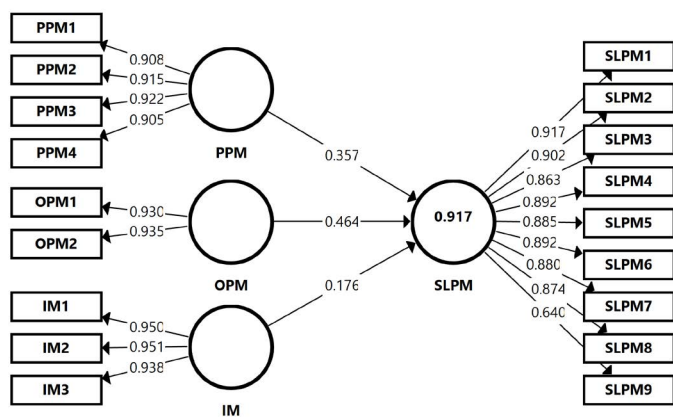

Figure. 2. *Measurement Model for Reliability and Validity.*
PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication
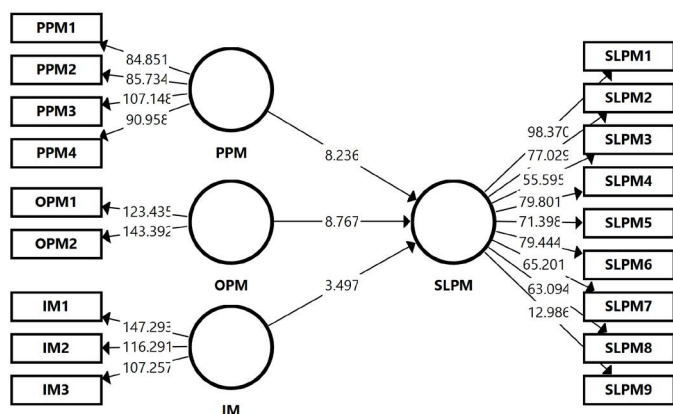
Figure. 3. *Structural Model.*
PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication

According to Hair, et al. [36], "the structural model test is used for path findings in any framework." Ringle, et al. [35] recommended that the "t > 1.96" and "p < 0.005" for significant path findings. The research has used "PLS Bootstrapping"

calculations for path results. H1 has significant findings "β = 0.357, t = 8.236 and p = 0.000" and the impact of PPM is significant on SLPM. Secondly, H2 has significant findings "β = 0.464, t = 8.767 and p = 0.000" and the impact of OPM is significant on SLPM. Thirdly, H3 has significant findings "β = 0.176, t = 3.497 and p = 0.000" and the impact of IM is significant on SLPM. The findings disclosed the impact of independent variables is significant on dependent variables. The findings of the structural model are available in Figure 3 and Table 3.

This research employed "PLS Blindfolding" calculations for determining the predictive relevance (see Figure 4). According to Hair, et al. [40] "predictive relevance is determined to check the relationship strength between independent variables and dependent variable in any framework." For determining predictive relevance, Hair et al. [36] reported "the value of Q^2 must not be below 0 for predictive relevance." The findings in Table 4 demonstrate the predictive relevance of this study is strong.

Discussion and Conclusion.

The objective of this research is achieved as it determined the significant relationship between variables taken in the theorized framework. First, the study identified the significant relationship between taking patch pain medication and patients' satisfaction with laboratory pain medication. This relationship is also supported by the outcome of existing studies in the body of knowledge. The study Vinik et al. [18] pointed out that patch pain medication is necessary for the health of patients because it has few side effects compared to other medications. Xu et al. [8] also highlighted that patch pain medication in Brazilian institutes is useful for providing better relief to patients in their critical health conditions. Furthermore, Gudin et al. [7] reported that most women patients are satisfied with the patch medication as they believed it is a less harmful treatment. Also, Martins Filho, et al. [3] concluded that patients with fatal diseases used to take the patch medication due to its worth. In addition, the

Figure. 4. *Blindfolding.*
PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication.
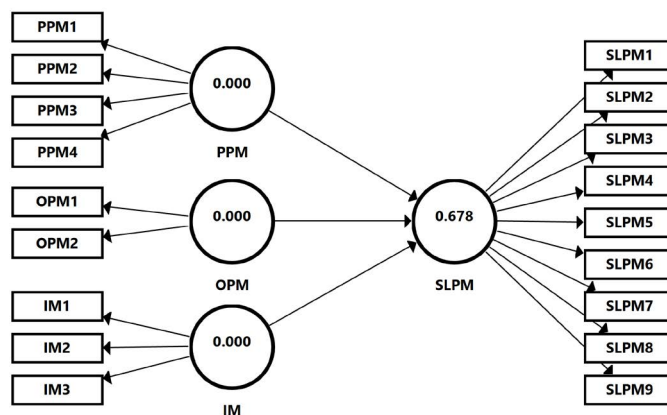
Table 1. *Convergent Validity.*

Construct	Items	Description	Loadings	α	CR	AVE
Taking Intravenous Medication	IM1	"My IV pain medication works quickly.	0.950	0.942	0.963	0.896
	IM2	My IV pain medication hurts when it is injected.	0.951			
	IM3	My IV injunctions leave too many bruises."	0.938			
Taking Oral Pain Medication	OPM1	"My oral pain medication is easy to swallow.	0.930	0.850	0.930	0.869
	OPM2	My oral pain medication leaves an after-taste."	0.935			
Taking Patch Pain Medication	PPM1	"My patch pain medication irritates my skin.	0.908	0.933	0.952	0.833
	PPM2	My patch pain medication is easy to apply to my skin.	0.915			
	PPM3	My patch pain medication is easy to take off.	0.922			
	PPM4	My patch pain medication falls off easily."	0.905			
Satisfaction with Laboratory Pain Medication	SLPM1	"I am satisfied with the information that you received about my pain and its treatment.	0.917	0.956	0.963	0.747
	SLPM2	I am satisfied with the amount of time that doctors devoted to me during their visits/consultations.	0.902			
	SLPM3	I am satisfied with the care provided by the nurses for my pain and its treatment.	0.863			
	SLPM4	I am satisfied with the form (pill or injection) of your medication.	0.892			
	SLPM5	I am satisfied with my medication.	0.885			
	SLPM6	I am satisfied with the amount of pain by medication.	0.892			
	SLPM7	I am satisfied with the time that it takes your pain medication to work.	0.880			
	SLPM8	I am satisfied with the level of amount of pain relief provided by my pain medication.	0.874			
	SLPM9	I am satisfied with the duration of pain relief provided by my pain medication."	0.640			

PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication

Table 2. *Heteritrait-Monotrait for Discriminant Validity.*

Constructs	IM	OPM	PPM	SLPM
IM				
OPM	0.771			
PPM	0.723	0.695		
SLPM	0.634	0.681	0.673	

PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication

Table 3. *Hypotheses Findings.*

Hypotheses	β	STDEV	T	p
PPM -> SLPM	0.357	0.043	8.236	0.000
OPM -> SLPM	0.464	0.053	8.767	0.000
IM -> SLPM	0.176	0.050	3.497	0.001

PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication

Table 4. *Predictive Relevance - Q².*

Constructs	SSO	SSE	Q² (=1-SSE/SSO)
SLPM	2034	654.897	0.678

PPM = Taking Patch Pain Medication, OPM = Taking Oral Pain Medication, IM = Taking Intravenous Medication, and SLPM = Satisfaction with Laboratory Pain Medication

study Evans et al. [34] highlighted that the patch pain medication is necessary for the patient's satisfaction because it is a new way of treatment accepted by the patients at the larger level. Martins Filho et al. [3] emphasized that the laboratories should enhance the usefulness of patch medication and for children, the patch should be prepared to treat their problems. According to Tangcharoensathien, et al. [41] the pain of the patients should be treated with patch medication as this method of treatment is widely accepted by consumers.

Secondly, the study determined the significant relationship between taking oral pain medication and patients' satisfaction with laboratory pain medication. Meanwhile, this relationship identified by the findings of the study is also supported by earlier research in the body of knowledge. As Boons, et al. [25] pointed out that oral medication relaxes the nerves of patients in a time of pain. Needleman, et al. [5] similarly highlighted that patients with pain are not in condition of longer treatment, but they need oral medication to get relief from the pain. Also, McEachan, et al. [42] reported that modern hospitals in European countries are utilizing the oral medication as a useful and emerging way for treatment for patients to improve their health standards. Park et al. [6] added that the adults and children both are normal to the oral pain medication because it is not affecting them negatively during the time of pain. Alodhayani, et al. [43] demonstrated that oral pain medication should be provided to patients when they are suffering from critical situations. Boons, et al. [25] reported that the medication of the patients is necessary for the improvement in health standards, but most of the patients seem satisfied with oral meditation which has a positive impact on their treatment. Moreover, Nasser, et al. [17] added that the patients with oral medication should be treated in the best way for improving their quality of life.

Finally, the research findings reveal the significant impact of taking intravenous medication on patients' satisfaction with laboratory pain medication. Also, the findings of this hypothesis are strongly backed by the findings of existing studies in the literature. The study Ventress, et al. [32] pointed out that patients should be treated well with liquid medication in their veins as it is a useful method for providing rapid relief from pain. Charoenpol, et al. [11] further, highlighted that patients with critical health conditions are less satisfied with patch medication rather than intravenous medication. According to Peeler, et al. [10], the patients of modern times are well satisfied with intravenous medication as their health is improved with better health facilities. Lin, et al. [9] reported that patients with appropriate mental health are treated with intravenous medication because this treatment has rapid recovery from pain with fewer side effects. Furthermore, Ala, et al. [12] emphasized the importance of intravenous health facilities because many adult patients seem satisfied if they are treated with intravenous medication recommended by their doctors. Meanwhile, Yunos, et al. [44] also concluded that intravenous medication is necessary for better health facilities as it helps to provide relief from pain.

Implications.

The study has some theoretical implications based on the study model. To start with, the model of this study is unique as it has

discussed and contributed the three factors (taking patch pain medication, taking oral pain medication, and taking intravenous medication) simultaneously for patients' satisfaction with laboratory pain medication. The study has enriched the literature by explaining the positive impact of taking patch pain medication for the satisfaction of the patients with laboratory medication that was not discussed in the existing studies. This novel relationship in the literature has significant importance for literature. Secondly, the study has enriched the literature by explaining the positive impact of taking oral pain medication on the satisfaction of the patients with laboratory medication which was not discussed in the existing studies. Meanwhile, this contribution to the relationship is new and it has enhanced the model of patient satisfaction. Thirdly, the study has enriched the literature by explaining the positive impact of taking intravenous medication on the satisfaction of the patients with laboratory medication which was not discussed in the existing studies. Also, this relationship has extended the theory and body of knowledge by the theorized model of this research.

Meanwhile, this research has practical implications that are remarkable for improving the quality of medication to patients with satisfaction. The study emphasized that patients in any hospital must be informed about the way of treatment for their satisfaction. The positive aspects and negative aspects of any certain treatment should be provided to the patients to develop their proper understanding of the medication service. The laboratories should design and work on the medication for providing relief to the patients with satisfaction. The satisfaction of the patients in the medication category makes them strong mentally which is necessary to get recovery from any disease. Therefore, the consent of the patients should be taken earlier before treatment and their recommendations should be noticed for medication service. Moreover, the hospital sector should provide true information about the patients to the laboratories to develop the medication according to the level of patients without any side effects. Moreover, learning about the patients' priorities would be useful for the health sector to research further ways of treatment that are necessary for the health care facilities of the patients. The patients must be provided with appropriate healthcare facilities as their health is fundamentally important for their standard of living.

Future Directions.

Although, this research was designed to investigate the impact of patch pain medication, oral pain medication, and intravenous medication on patients' satisfaction with laboratory pain medication. Similarly, this study is based on a gap that was neglected in the body of knowledge. Importantly, this research has developed and contributed to a new model of patients' satisfaction with laboratory medicine in the literature. However, there are some limitations of this study that need to be addressed by future researchers. Firstly, the study has obtained that the relationship between taking patch pain medication and patients' satisfaction with laboratory pain medication is significant, but it has not discussed any mediating relationship. Therefore, the studies in future may investigate the mediating impact of side-effects of medication to rationalize the findings. Secondly, this research has determined the relationship between taking

oral pain medication and patients' satisfaction with laboratory pain medication is significant, however, it has not discussed any moderating relationship. In this way, the research in the future should check the moderating impact of service quality in the health sector. Finally, the study has checked whether the relationship between taking intravenous medication and patients' satisfaction with laboratory pain medication is significant, but it has not discussed any mediating or moderating relationship. Thus, scholars in further research of medication may check the mediating impact of side-effects and moderating impacts of nurses' behavior on medication of laboratory for patients' satisfaction.

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