



Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

ORIGINAL ARTICLE

PROCESSING OF MATERIALS IN BEAUTY ESTABLISHMENTS: ELABORATION, VALIDATION AND APPLICATION OF A QUESTIONNAIRE

PROCESSAMENTO DE MATERIAIS EM ESTABELECIMENTOS DE BELEZA: ELABORAÇÃO, VALIDAÇÃO E APLICAÇÃO DE UM QUESTIONÁRIO

PROCESAMIENTO DE MATERIALES EN ESTABLECIMIENTOS DE BELLEZA: ELABORACIÓN, VALIDACIÓN Y APLICACIÓN DE UN CUESTIONARIO

Carolina Seleguini Person¹, Maria Isabel Pedreira de Freitas², Tiago Cristiano de Lima³, Talita Rodrigues Nicácio⁴

ABSTRACT

Objective: to elaborate an instrument to evaluate the processing of instruments used in commercial establishments with manicures, pedicures and podology services. **Method:** quantitative study, methodological type. After reviewing the literature, the instrument was used to check the processing of the instruments used. Questionnaire submitted to Content Validation by Expert Committee. Content Validity Index calculated to evaluate the concordance between judges regarding the clarity and relevance of the items. The validated instrument was applied in 14 establishments. **Results:** instrument with validated content according to the criteria established in the literature. Of the 14 establishments evaluated, 12 carried out cleaning, two with only water; eight, with water and detergent and one, with trisodium orthophosphate. 13 used Pasteur furnaces. Of these, two, without thermostat and nine, without thermometer. **Conclusion:** validated instrument capable of identifying defects in the processing of materials used in the services of manicures, pedicures and podiatry. **Descriptors:** Nursing; Validation Studies; Exposure to Biological Agents; Beauty and Aesthetics Centers.

RESUMO

Objetivo: elaborar um instrumento para a avaliação do processamento de instrumentais utilizados em estabelecimentos comerciais com serviços de manicures, pedicures e podologia. **Método:** estudo quantitativo, tipo metodológico. Após a revisão da literatura, foi elaborado o instrumento para a checagem do processamento dos instrumentais utilizados. Questionário submetido à Validação de Conteúdo por Comitê de Especialistas. Índice de Validade de Conteúdo calculado para avaliar a concordância entre juízes a respeito da clareza e pertinência dos itens. O instrumento validado foi aplicado em 14 estabelecimentos. **Resultados:** instrumento com conteúdo validado de acordo com os critérios estabelecidos na literatura. Dos 14 estabelecimentos avaliados, 12 realizavam a limpeza, sendo dois apenas com água; oito, com água e detergente e um, com ortofosfato trissódico. 13 utilizavam fornos de Pasteur. Destes, dois, sem termostato e nove, sem termômetro. **Conclusão:** instrumento validado capaz de identificar falhas no processamento de materiais utilizados em serviços de manicures, pedicures e podologia. **Descritores:** Enfermagem; Estudos de Validação; Exposição a Agentes Biológicos; Centros de Embelezamento e Estética.

RESUMEN

Objetivo: elaborar un instrumento para la evaluación del procesamiento de instrumentos utilizados en establecimientos comerciales con servicios de manicuras, pedicuras y podología. **Método:** estudio cuantitativo, tipo metodológico. Después de la revisión de la literatura, se elaboró el instrumento para cheque del procesamiento de los instrumentos utilizados. Cuestionario sometido a la Validación de Contenido por Comité de Especialistas. Índice de Validez de Contenido calculado para evaluar la concordancia entre jueces acerca de la claridad y pertinencia de los ítems. El instrumento validado se aplicó en 14 establecimientos. **Resultados:** instrumento con contenido validado de acuerdo con los criterios establecidos en la literatura. De los 14 establecimientos evaluados, 12 realizaban la limpieza, siendo dos sólo con agua; ocho, con agua y detergente y uno, con ortofosfato trisódico. 13 utilizaban hornos de Pasteur. De éstos, dos, sin termostato y nueve sin termómetro. **Conclusión:** instrumento validado capaz de identificar fallas en el procesamiento de materiales utilizados en servicios de manicuras, pedicuras y podología. **Descriptores:** Enfermería; Estudios de Validación; Exposición a Agentes Biológicos; Centros de Belleza y Estética.

¹Nurse, Nursing School, State University of Campinas / UNICAMP. Campinas (SP), Brazil. E-mail: ina.csp@gmail.com; ²Nurse, PhD, Professor of Nursing, Faculty of Nursing, State University of Campinas / UNICAMP. Campinas (SP), Brazil. E-mail: bellp@unicamp.br; ³Nurse, Doctor of Health Sciences, Infection Control Service, Clinical Hospital, State University of Campinas / UNICAMP. Campinas (SP), Brazil. E-mail: tiagolima@hc.unicamp.br; ⁴Nursing Student, Nursing School, State University of Campinas / UNICAMP. Campinas (SP), Brazil. E-mail: t120166@dac.unicamp.br

INTRODUCTION

The susceptibility to infectious diseases can be considered critical in commercial establishments with services of manicures, pedicures and podiatry. Percutaneous or mucosal exposures to blood of infected individuals represent the main source of transmission of infectious agents, since minimal amounts of blood are sufficient for an infection to occur, given the high virulence of many microorganisms such as hepatitis B and C. This condition can be aggravated, if it is considered that the providers of these services are largely informal and generally have low educational level and low professional qualifications.¹

There are several opportunities that favor the risk of transmission of microorganisms both among providers, and recipients of the practices of these professionals, due to the possibility of sharing personal use sharp objects such as razors, shavers, epilators and pliers, important sources in percutaneous transmission.²⁻³

In these establishments, instruments, such as nail clippers and scissors, are widely used and can be considered potential transmitters of infectious agents, which corroborates the importance of educational actions of knowledge and awareness for the adoption of preventive measures such as individual protection, specific care in the manipulation of the instruments, hand hygiene with soap and water or 70% alcohol and adequate processing of instruments.²

In this sense, commercial establishments, that offer the public services of manicures, pedicures and podiatry, are considered health establishments, since they may represent risks to their users if good practices are not adopted.^{2,4} Knowing possibilities and risks of disease transmission, notions of hygiene, processes, disinfection of utensils and instruments and care in the use of certain products is fundamental in the provision of these types of services and, for that, they must follow current sanitary legislation, in order to guarantee the safety of the clients and the quality in the services provided.⁴

Instrumental processing must strictly follow the universally established steps, based on its classification in critical, semicritical and non-critical articles, as well as the degree of contamination that each material can retain on its surface.⁵

This classification is necessary for the safe processing of the instrument. In the manicure, pedicure and podiatry services different instruments are used that penetrate the

adjacent skin and mucosa, subepithelial tissues and vascular system, causing lesions, which allow them to be classified as critical instruments.⁵⁻⁶

A critical instrument must be initially cleaned, at which point its soil and part of the microbial load are removed. Subsequently, rinsing and thorough drying are performed for further sterilization. Sterilization aims to destroy all forms of microbial life and can be performed by chemical, physical or physicochemical agents.⁷

Thus, considering the complexity of the preparation of the instruments used by manicures, pedicures and podologists, it is essential to know how the establishments that house these professionals have been processing their materials, and then, through the identification of possible flaws in this process, propose conditions to adapt the processing and thus reduce the risks to customers and professionals. Therefore, it is necessary to elaborate and validate questionnaires that allow the evaluation of the process carried out.

When preparing a questionnaire for data collection, the researcher must be aware that the phenomena in which he is interested should be translated into concepts that can be measured, observed or recorded. The task of selecting or developing methods for gathering data is among the most challenging in the research process. Without adequate methods for data collection, the validity of the research findings is easily put to the test.⁸⁻¹⁰

The robustness of the results of a study depends very much on the questionnaire used and, for this it needs to be validated once it has been elaborated. Validity refers to the degree to which a questionnaire measures, what it is proposed to measure, with three main types of validity: content validity, construct validity, and validity related to a criterion.⁸⁻¹⁰ For this study, it was verified the content validity of the questionnaire constructed.

OBJECTIVES

- To elaborate a questionnaire to evaluate the processing of instruments used in commercial establishments with manicures, pedicures and podology services.
- To validate the questionnaire to evaluate the processing of instruments used in commercial establishments with manicures, pedicures and podology services.
- To apply a questionnaire to evaluate the processing of instruments used in commercial

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establishments with manicures, pedicures and podology services.

METHOD

Methodological study, with quantitative approach. A questionnaire was elaborated after a wide review of the literature, in the main databases, having as guiding question: How are the instruments used in commercial establishments with manicures, pedicures and podology services processed? In addition, visits were made in places that had manicure, pedicure and podology, services in order to assist the researchers in ordering and supporting the questions to be asked. From this process, the first version of the questionnaire, was composed of four sections: "Characterization of the Establishment", "Characterization of Human Resources"; "Characterization of Instrumentals" and "Characterization of Instrumentation Processing". At this moment, the questionnaire was submitted to the validation of its content.

This evaluation was performed by a group of experts, who evaluated the items individually and as a whole. The selection of the committee of experts took into account their experience and qualification in the area to be studied and was composed as follows:

- Doctor, doctor, with experience in the area of gastro-surgery and digestive endoscopy;

IVC =
$$\frac{\text{Number of answers "3" ou "4"}}{\text{Total number of answers}}$$

When considering the number of committee members, it was decided that acceptable agreement among experts should be equal to or greater than 0.80. Lower values implied revision or automatic elimination of the item.⁸⁻⁹ After analyzing the data, the questionnaire was reformulated according to the guidelines and suggestions of the specialists and applied a pre-test with three commercial establishments with services of manicures, pedicures and podology, with the purpose of identifying possible failures in the questionnaire, such as: existence of ambiguity, existence of superfluous questions, complexity of the questions and feasibility of the questionnaire. After the pre-test, new adaptations were made, finally allowing, to reach the final version of the questionnaire for data collection.

The validated version of the questionnaire was applied to a sample of 14 commercial establishments with manicures, pedicures and podology services in the interior of the State

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- Nurse, doctor, with experience in the areas of epidemiology and control of hospital infection;
- Nurse, doctor, with experience in the area of collective health, with emphasis on human resources development;
- Nurse, doctor, with experience in the area of public health, with emphasis on methodological research;
- Nurse, doctor, with experience in microbiology, with emphasis on molecular epidemiology;
- Nurse, doctor, with experience in research involving the reprocessing of medical and hospital articles;
- Veterinary doctor, doctor, with experience in the areas of viral diagnosis (serological and molecular), viral susceptibility and viral characterization.

The experts used a four-point Likert Scale, to assess the clarity and relevance of each item in the questionnaire and classified the questions as: 1 = not clear; 2 = unclear; 3 = fairly clear; 4 = very clear and 1 = not relevant; 2 = not very relevant; 3 = quite relevant; 4 = very relevant. In order to determine the agreement between the experts, the Content Validity Index, was used where the calculation is made from the sum of the "3" and "4" answers of each judge, in each item of the questionnaire, and this sum is divided by the number total responses, as follows:

of São Paulo. The data collection was done through an interview conducted by one of the researchers and the data were analyzed and presented in a descriptive way.

Those responsible for the establishments were oriented in relation to the objectives of the study and the data were only collected after their consent and signing of the Term of Free and Informed Consent. The project was approved by the Research Ethics Committee of a State University of the interior of the State of São Paulo. CAAE: 0062.0.146.146-11

RESULTS

The questionnaire for data collection, initially elaborated, presented a total of 178 questions. After evaluation by the committee of experts, 21 items obtained IVC less than 80% in the pertinence question. Of these, 18 were excluded and three, modified, according to the orientation of the evaluators. In relation to clarity, 13 items obtained CVI less than 80%, one question was excluded and 12

others were modified. One hundred and forty-four questions were clear and pertinent, with CVI greater than 80%. Of these, 29 were altered, according to relevant written suggestions by the experts and four were excluded, since they had a direct relation with the excluded items, thus, losing their meaning, in the questionnaire.

In addition to the modifications and exclusions made, the committee of experts suggested the inclusion of issues, essentially related to the cleaning, rinsing and disinfection of the materials, in order to guarantee the adequate coverage of the investigations to be carried out. Therefore, 13 new items were added to the instrument, at the end of this phase, a questionnaire with a total of 168 items, subdivided in the sections.

With the pre-test, it was noticed the need to adapt some items to facilitate the understanding of the respondents, which resulted in the dismemberment of some issues originating 29 new items. The final version of the questionnaire, now validated, provided a total of 197 items, distributed in its four sections: characterization of the establishment (09 items); characterization of human resources (12 items); characterization of the instruments (48 items) and characterization of the processing of instruments (128 items).

The validated version of the questionnaire was applied to a sample of 14 commercial establishments with manicures, pedicures and podiatry services and the results are presented in a descriptive way below.

Characterization of establishments: of the 14 establishments visited, only eight had a visible record of the Sanitary Surveillance of the municipality. Twelve were quoted as having a Operating Permit, however, only five of these had them in a visible place. In relation to the activities developed by the establishment, one offered only services of podology, ten, of manicure and pedicure and three offered both services.

Characterization of human resources: in all the researched establishments, the person responsible for the processing of the material was the professional who used the instruments. All the professionals had courses related to the occupation and two had a college degree.

Characterization of instruments: Regarding the instruments used in the researched establishments, cuticle pliers (eponíquo) and nail pliers were used by all professionals, regardless of the type of activity. Of the 13 sites that had a manicure and pedicure activity, 11 used metal spatulas, one used

nuclear spatulas and four used other metal instruments, such as picks, toothpicks and curettes. Of the four sites that offered podiatry services, all use scalpel cables, scalpel blades, drills and nuclear. Two used spatulas and one used a curette and disembodyment. In two establishments, some customers held individual kits.

Characterization of instrumental processing: Regarding the cleaning process, of the 14 establishments surveyed, two did not perform. Of the 12 establishments that performed the cleaning, eight used water and neutral detergent; two, only water; one, glycerin soap and a trisodium orthophosphate, however, the dilution recommended by the manufacturer is not performed. In the establishments that performed the cleaning, all the instruments were rinsed and only one did not perform drying.

Regarding the disinfection process, it was carried out in nine establishments, four disinfection by friction (two, with 70% alcohol; one with ammonium quaternary and one, with formaldehyde 7.99%); five, by immersion in disinfectant; two, in ammonium quaternary; one, in formaldehyde 7.99%; one, in glutaraldehyde 2% and one, in Dakin liquid (sodium hypochlorite 0.5%) and two did disinfection by immersion, but used enzymatic detergent. All of them performed the drying of the instruments after disinfection by immersion, but four did not rinse the instruments.

With regard to the sterilization process, all establishments performed, 12 of which used a greenhouse, one used an autoclave and one used the two equipment. The instruments sterilized in the autoclaves were packed in surgical grade paper with plastic film, where the sterilization date and the name of the person responsible for processing the material were recorded. In one of the establishments, periodic monitoring of the cycles was carried out, using chemical and biological indicators. Another institution did not know how the process of monitoring cycles was given.

Of the 13 salons that used Pasteur Furnace, 11 used aluminum boxes; one, only aluminum foil and one did not use any packaging. Of the 13 greenhouses evaluated, two did not have a thermostat to regulate the sterilization temperature and nine did not use a thermometer to control the temperature. Only five establishments performed an evaluation of the operation of these equipments, two of them only doing so when they perceived an inadequate functioning. In addition, two maintained a routine of opening

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the Pasteur Furnace during the sterilization cycle.

Concerning the storage of the instruments, those used by manicure and pedicure, were stored, in individual sets, only in three establishments. Podiatry instruments were stored in individual sets at all establishments presenting the service. In one setting, the routine of changing the packaging instrument after sterilization was observed.

When considering that all the establishments should carry out the cleaning process before proceeding to any other stage in the processing of the instruments, it was verified that of the 14 establishments evaluated, only two complied with all cleaning steps adequately.

DISCUSSION

The difficulty in finding scientific papers that address how the materials used in commercial establishments, with manicures, pedicures and podiatry services, are being prepared, as well as the absence of measurement questionnaires, that help to evaluate the quality of the processing of the instruments used, were the main motivators for the development of this research.

The use of a validated questionnaire, to verify how has been processing the materials used by manicures, pedicures and podologists, has favored the approach of the process operators and the understanding of how each step has been performed. It also allowed, the identification and evaluation, of the risks to which the population, that uses these services is being exposed.

With regard to diseases that can be acquired in establishments with manicures, pedicures and podiatry services, as a result of inadequate processing of the instruments used by them, it is possible to say that they are diseases transmitted by different microorganisms (bacteria, fungi and viruses), which have serious consequences for the life of society, since they involve treatments, that are often, time-consuming, uncertain and with possible complications, such as hepatitis B and C.¹¹⁻²

It is the responsibility of the organs of the Sanitary Surveillance to supervise and exercise sanitary control in establishments that may pose a risk to the health of the population, guaranteeing the protection and promotion of their health.¹³ It is observed that in beautification institutes such as tattoo studios, not inspected by Sanitary Surveillance, there is a greater deficiency in

the way the instruments are processed, when compared to the inspected establishments.

The data from this study show that of the 14 salons visited, eight were registered in the Sanitary Surveillance, which corresponds to just over half. Thus, probably one aspect that may be related to improper processing is the fact that some of the establishments do not have a surveillance record. Law No. 12592, dated January 18, 2012, in its Article 4, states that, "The professionals referred to in this Law shall comply with sanitary norms, sterilizing materials and utensils used to assist their clients."¹⁴

With regard to the preparation of the professionals who perform the processing of the materials in these establishments, it is noted that the training courses for manicures, pedicures and podiatrists are not always given by trained and efficient people, so it is possible to say that these places are not prepared to offer this type of training. This finding corroborates the hypothesis that the courses are not being conducted in order to train professionals who offer a safe service and evidence the need to follow up the training by professionals linked to the health surveillance organs of the municipal and state secretariats, especially when analyzes each step of the process.

This lack of training and / or knowledge is recorded in the literature and shows that beauty salons and aesthetic clinics are contributing to the dissemination of microorganisms and diseases that are often acquired but are not associated with these environments in a process silent transmission.¹⁶

Cleaning, which should be the first stage of processing, is not performed in two establishments and is performed inadequately in another four. According to the literature, the previous cleaning is the main factor for the reduction of the bacterial load of the instruments. In addition, there is a recommendation for manual washing to be carried out with detergent and with a brush, in order to contribute to the removal of dirt from the instrument.¹⁷⁻¹⁸

Although it was identified that the sterilization is carried out in all the visited establishments, it was noticed flaws that probably do not guarantee the effectiveness of the process, especially when the equipment used is the Pasteur Furnace, being observed the absence of packaging of the instruments, the presence of non-functioning thermostats, the lack of thermometers and the interruption of the sterilization cycle, with the opening of the equipment. In cases where the autoclave

is used, only one establishment uses indicators that allow validating the sterilization process.

In view of the findings, the state of sterility of the instruments at the moment of its use and, consequently, the safety of the users and professionals that work in these establishments is questionable. In the meantime, it is evident the need for educational actions among professionals working in establishments with services of manicure, pedicure and podology, guiding them in relation to the principles of contagion, through microorganisms that can be present in the equipment used, to carry out their work. Also, in this sense, it is necessary to qualify them regarding the correct procedures and techniques to be used to disinfect and sterilize the materials, avoiding the dissemination of infectious agents, especially those responsible for viral hepatitis.¹⁹⁻²⁰

CONCLUSION

The questionnaire developed for the collection of data, regarding the processing of instrumental used commercial establishments with services of manicures, pedicures and podology, has been validated in relation to its content.

The instrument can be used in later studies, to obtain reliable data to support prevention actions in the transmission of diseases in the workplaces of manicures, pedicures and podologists, acting directly in health surveillance.

The results allow us to infer the importance of continuing the investigation in this subject, considering the various problems related to the inadequate processing of the instruments used by manicures, pedicures and podiatrists in the establishments investigated. They also suggest, that clients of these establishments prefer personal instruments during their consultations, rather than the instruments offered by the institutions when they offer this option.

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Submission: 2016/12/30
Accepted: 2017/09/15
Publishing: 2017/10/01

Corresponding Address

Tiago Cristiano de Lima
Rua São Bento, 104
Bairro Santa Terezinha
CEP: 13973-181 – Itapira (SP), Brazil