UNIVERSIDADE FEDERAL DE SERGIPE
PRÓ-REITORIA DE PÓS-GRADUAÇÃO E PESQUISA
DOUTORADO EM CIÊNCIAS DA SAÚDE

WERLISSANDRA MOREIRA DE SOUZA

AVALIAÇÃO DE COMPETÊNCIAS NECESSÁRIAS PARA A PRÁTICA DA ATENÇÃO FARMACÊUTICA

ARACAJU
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Tese apresentada ao Núcleo de Pós-Graduação em Medicina da Universidade Federal de Sergipe como requisito para obtenção do grau de Doutora em Ciências da Saúde.

Orientador: Prof. Dr. Ângelo Roberto Antoniolli

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2015

FICHA CATALOGRÁFICA ELABORADA PELA BIBLIOTECA BISAU
UNIVERSIDADE FEDERAL DE SERGIPE

Souza, Werlissandra Moreira de
S729 Avaliação de competências necessárias para a prática da atenção farmacêutica / Werlissandra Moreira de Souza ; orientador Ângelo Roberto Antoniolli. – Aracaju, 2015.
179 f.

Tese (doutorado em Ciências da Saúde) – Universidade Federal de Sergipe, 2015.

1. Farmacologia. 2 Educação farmacêutica. 3. Competências. 4. Avaliação. 5. Atenção farmacêutica. I. Antoniolli, Ângelo Roberto, orient. II. Título.

CDU 615

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Aprovada em:__/__/__

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PARECER

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Dedico este trabalho à meu pai José Alves de Souza "in Memorian", com muitas saudades.

AGRADECIMENTOS

Só foi possível chegar aqui com o incentivo, apoio e torcida de várias pessoas. Ficaria difícil agradecer e nomeá-las todas, no entanto, há algumas que foram e são especiais nesse meu caminhar.

À Deus por ter me dado uma família maravilhosa e amigos sinceros. Por ter guiado meus passos, quando algumas vezes, sentindo-me desacreditada e perdida nos meus objetivos e ideias, fez com que chegasse a este momento. Ele que a mim atribuiu missões pelas quais consegui batalhar e vencer.

Especialmente aos meus pais, José (*in memorian*) e Elena, pelos ensinamentos, pela determinação e luta na minha formação e pelo exemplo e vida.

Aos meus irmãos, Wander, Wernet e Wanderlene que torceram para que eu vencesse mais essa importante etapa.

À minha Tia Zinha, pela preocupação, incentivo e estímulo para enfrentar as barreiras da vida.

À minha grande amiga Francy pelo grande carinho, inestimável amizade, que muitas vezes elevou minha autoestima e pelas horas de conversas importantes para o meu equilíbrio emocional.

À Zezinho e Francely por tem me proporcionado muitos momentos felizes e de descontração.

Ao amigo Jailton, exemplo de dedicação ao trabalho, que desde o início me inspirou a buscar a área acadêmica, clareou meus pensamentos e pelas constantes demonstrações de sabedoria.

Ao meu orientador, Prof. Ângelo Roberto Antoniolli, por tornar possível meu ingresso no doutorado que muito contribuiu para o enriquecimento da minha formação acadêmica e científica.

Ao meu co-orientador Prof. Wellington Barros da Silva pelos conhecimentos transmitidos, pelas opiniões, críticas, compreensão e por me ensinar parte do que sei e, o que é mais importante, me ensinou a aprender sozinha, fundamental para o meu crescimento profissional.

Ao Prof. Divaldo Pereira Lyra Júnior, não só por ter acreditado em mim, mas também, pela confiança que em mim depositou, pela oportunidade, disponibilidade, por proporcionar as condições necessárias para a execução deste trabalho e pelas correções e sugestões relevantes.

À todos integrantes do Laboratório de Ensino e Pesquisa em Farmácia Social (LEPFS), em especial à Alessandra que estava ao meu lado durante essa investigação me dando força, me apoiando e pelas constantes contribuições e valiosas discussões ao longo da realização deste trabalho. À Aline, Carla, Daniel, Marcos, Izadora, Sabrina e Thays, pela ajuda na coleta de dados.

Aos professores Angelita, Cassyano, Josélia pelas contribuições presentes neste estudo.

À professora Denise Bueno por direcionar quanto à análise qualitativa.

À professora Dulce por ceder seu laboratório para ministramos algumas aulas.

Ao professor Marcos Dósea e aos discentes Andrés e Cleverton do Departamento de Computação da UFS, pela colaboração no desenvolvimento do software do paciente virtual.

À Coordenação de Aperfeiçoamento de Pessoal do Ensino Superior (CAPES) pelo apoio financeiro para a realização desta pesquisa.

Ao Prof. Marco Prado Nunes, Prof. Roberto Jerônimo dos Santos Silva, Prof. Marcos Valério Santos da Silva, que como membros da banca de qualificação e de defesa, contribuíram com importantes e enriquecedoras sugestões.

Tendo consciência de que sozinha nada disso teria sido possível, minha eterna gratidão a todos, que cruzaram minha vida, participando de alguma forma no meu crescimento!

“Agora, pois, vemos apenas um reflexo obscuro, como em espelho; mas, então, veremos face-a-face. Agora conheço em parte; então, conhecerei plenamente...”

I Coríntios 13:12

RESUMO

AVALIAÇÃO DE COMPETÊNCIAS NECESSÁRIAS PARA A PRÁTICA DA ATENÇÃO FARMACÊUTICA, Werlissandra Moreira de Souza, São Cristóvão, 2015.

Objetivo: avaliar as competências necessárias para a prática da atenção farmacêutica. **Métodos:** Grupos focais foram desenvolvidos para: analisar a percepção dos estudantes de Farmácia sobre a sua formação, visando o nível de adequação para a prática profissional e, para obter, junto aos especialistas, conteúdos e habilidades recomendáveis para a formação adequada à prática da atenção farmacêutica. Uma revisão sistemática da literatura foi efetuada para identificar estudos sobre o ensino e avaliação da atenção farmacêutica. A análise das competências ocorreu por meio de um modelo conhecido como Exame Clínico Objetivo Estruturado (OSCE), composto por três estações, antes (OSCE BC) e após (OSCE AC) a disciplina de atenção farmacêutica. Cada estação envolveu: pacientes simulados, examinadores e farmacêuticos (interpretado pelos estudantes). Os estudantes foram convidados a realizar um procedimento, como (1) educação do paciente em relação à técnica de administração de medicamentos, (2) a aferição de parâmetros clínicos, e (3) convite dos pacientes para participar de um serviço de atenção farmacêutica. Examinadores usando um checklist padrão avaliaram os estudantes. **Resultados:** Os estudantes de farmácia não se sentem preparados para tomar decisões, resolver problemas e lidar com o comportamento imprevisível dos pacientes. A inexistência de uma farmácia escola, a subutilização do Hospital Universitário e a falta de contato com pacientes reais foram as principais causas apontadas para a deficiência na sua formação profissional em termos de conhecimentos práticos e habilidades. O excesso de conceitos teóricos das disciplinas e as deficiências didáticas e pedagógicas dos professores também contribuem para obscurecer o lado prático do curso. Na revisão sistemática foram identificados 25 estudos com foco predominante no desenvolvimento, avaliação e/ou revisão de cursos de atenção farmacêutica. Muitos métodos de ensino diferentes foram descritos, no entanto, na maioria destes os métodos de avaliação não estavam de acordo com os métodos de ensino descritos. Os métodos de avaliação mais comuns foram provas escritas e questionários. Segundo o grupo de especialistas é necessário que os estudantes obtenham: conhecimentos sobre doenças específicas e uso de medicamentos, detecção e resolução de problemas relacionados com medicamentos, documentação das intervenções e monitoramento da terapêutica do paciente ao longo do tempo; além de habilidades para assumir responsabilidades na orientação ao paciente, na comunicação com outros profissionais de saúde; todos importantes para a prática clínica da farmácia. O grupo ressaltou a necessidade de adotar outros métodos de ensino e de avaliação para permitir o aprendizado efetivo dos estudantes em atenção farmacêutica e determinar se os objetivos de aprendizagem desejados foram atendidos. A maioria dos estudantes obtiveram notas baixas em todas as tarefas na OSCE antes da disciplina de atenção farmacêutica, revelando falta de preparo para realizá-las. O desempenho global dos estudantes na OSCE melhorou significativamente na maioria dos aspectos estudados depois de terem frequentado a disciplina de atenção farmacêutica, exceto para o convite do paciente para participar do serviço de atenção farmacêutica. Os estudantes alcançaram os maiores pontuações gerais com a tarefa de aferição de parâmetro clínico. **Conclusão**: A pesquisa revelou que houve um incremento das competências dos estudantes para a prática da atenção farmacêutica após a disciplina específica administrada voltada ao tema em estudo.

Descritores: Competências; Atenção Farmacêutica; Educação Farmacêutica, Avaliação.

ABSTRACT

ASSESSMENT OF REQUIRED COMPETENCIES FOR THE PRACTICE OF PHARMACEUTICAL CARE, Werlissandra Moreira de Souza, São Cristóvão, 2015.

Objective: To evaluate the necessary skills for the practice of pharmaceutical care. **Methods:** Focus groups were developed to analyze the perceptions of pharmacy students about their training, focusing on the adequacy for professional practice and to obtain contributions from the experts about the recommended content and skills for the suitable training to the practice of pharmaceutical care. A systematic literature review was conducted to identify studies on the teaching and assessment of pharmaceutical care. The analysis of skills was done using a model known as Objective Structured Clinical Examination (OSCE), consisting of three stations before (OSCE BC) and after (OSCE AC) the students attended to the pharmaceutical care course. Each station involved: simulated patients, examiners and pharmaceuticals (played by students). Students were asked to perform a procedure, such as (1) patient education regarding medication administration technique, (2) the measurement of clinical parameters, and (3) invitation of patients to participate in a pharmaceutical care service. Using a standard checklist, the examiners evaluated the students. **Results:** The pharmacy students do not feel prepared to make decisions, to solve problems and to deal with the unpredictable behavior of patients. The absence of a Pharmacy School, underutilization of the University Hospital and the lack of contact with real patients were the major causes for disability in their professional training in terms of practical knowledge and skills. Excess of theoretical concepts and the didactic and pedagogical shortcomings of teachers also contributed to hide the practical side of the course. In the systematic review it were identified 25 studies with a predominant focus on the development, review and/or revision of pharmaceutical care courses. Many different teaching methods were described, however, in most of them evaluation methods were not in accordance with the new teaching methods described. The very common methods of assessment were written questionnaires and tests. According to the group of experts, it is necessary that students acquire: knowledge on specific diseases and use of drugs, detection and resolution of drug related problems, assistance documentation and monitoring of patient therapy over time, as well as skills to take responsibility for patient education, communication with other health professionals, all important issues in the clinical practice of pharmacy. The group stressed the need to adopt new teaching methods and evaluation to enable effective learning of students in pharmaceutical care and to determine if the desired learning objectives are met. The most of students obtained low scores in all tasks at OSCE BC stations, revealing their lack of preparation to perform them. The overall performance of students at OSCE AC significantly improved in the most of aspects studied after they attended the Pharmaceutical Care course, except for the invitation to join in a pharmaceutical care service task. Students attained the highest overall scores at the measurement of clinical parameter task. **Conclusion:** The study revealed that there was an increase of the skills of students to the practice of pharmaceutical care after specific course administered directed to the topic under study.
Keywords: Competencies, Pharmaceutical Care, Pharmaceutical Education, Evaluation.

SUMÁRIO

INTRODUÇÃO

1. INTRODUÇÃO

Segundo a Organização Mundial de Saúde, os farmacêuticos devem possuir competências (conhecimentos, habilidades e atitudes) específicas para serem efetivos em suas ações e serem capazes de atuar no cuidado centrado no paciente (HASSALI et al., 2011; SARRIF et al., 2012; KOSTER et al., 2014; BECKETT et al., 2014). Para isso, a formação dos farmacêuticos com foco em tal cuidado requer uma variedade de conhecimentos especializados e aplicação e avaliação diferenciada de habilidades voltadas para identificar e atender às necessidades terapêuticas específicas do paciente (YUSUFF, 2014). No entanto, a avaliação de competências, nos cursos de Farmácia do Brasil, não é bem sistematizada (TRONCON, 2007).

A avaliação de competências corresponde à tentativa de analisar a integração que o estudante conseguiu fazer da teoria com a prática ao longo do curso e da capacidade de estimular seus conhecimentos e habilidades aprendidas para lidar com as situações, os problemas e os dilemas da vida real. Bem realizadas promovem o crescimento pessoal e profissional e contribuem para o aprimoramento do próprio processo educacional, resultando na formação de farmacêuticos com melhor compreensão das necessidades de saúde da população e mais capacitados para o desempenho de suas atividades profissionais (AGUIAR; RIBEIRO, 2010). A avaliação de competências, dificilmente retratadas em opções de múltipla escolha, devem ser contínuas e introduzidas no início do currículo de graduação (DEPRESBITERIS, 2001; ANGELO; CROSS, 1993; KHORASHAD et al., 2014). Nos últimos anos, porém, um dos maiores desafios tem sido avaliar a competência de forma precisa e objetiva (PIJL-ZIEBER et al, 2014).

Outros métodos de avaliação devem ser colocados em prática para determinar se os estudantes têm alcançado o nível de competência necessário para a prática farmacêutica. Existem diferentes métodos para aquisição e avaliação de habilidades clínicas, um dos quais é o exame clínico objetivo estruturado (OSCE). Este método permite testar diversos conhecimentos, habilidades e atitudes, sendo aceito como um instrumento adequado para medir as habilidades de raciocínio clínico (BHAT; ANALD, 2006; SHADIA et al, 2010; KATOWA-MUKWATO et al, 2013.). Ao contrário do exame clínico tradicional, OSCE pode avaliar o desempenho dos mais críticos problemas de profissões de saúde, por exemplo, a capacidade de obter ou interpretar os dados do paciente; resolver problemas, ou até mesmo a capacidade de comunicação, tomada de decisões e lidar com o comportamento imprevisível do paciente (ZAYYAN, 2011).

Diversos países têm realizado mudanças na avaliação de novas competências dos estudantes de Farmácia (HASSALI et al., 2011; BLOM et al., 2011; KOSTER et al., 2014). No Brasil, ainda que as novas Diretrizes Curriculares Nacionais para os cursos de Farmácia representem a mudança da profissão farmacêutica, condizente com a responsabilidade atual, a maioria dos cursos de graduação em Farmácia ainda não tem contemplado elementos essenciais para a prática clínica (BRASIL, 1996; BRASIL, 2002; OLIVEIRA et al., 2005; SILVA, 2009). Os métodos de avaliação não estão de acordo com o modelo pretendido que contempla inovações relacionadas à profissão farmacêutica.

Essa inovação na profissão conduz a necessidades de modificações nos currículos, nas estratégias de avaliação da educação em Farmácia, com mais ênfase no desenvolvimento e avaliação das habilidades para a prática profissional, incluindo a tomada de decisão clínica, que são necessários para a efetiva atenção ao paciente (MONAGHAN et al., 1995; BRANDT, 2000; BRUCE et al., 2006; AWAISU et al., 2010).

Diante disso, o presente trabalho visa avaliar as competências necessárias para a prática da atenção farmacêutica, incrementando a qualidade dos profissionais egressos da Universidade Federal de Sergipe e preparando o caminho para que os cursos de Farmácia de outras universidades também utilizem as contribuições emanadas do presente estudo em prol da melhoria em âmbito nacional.

1.1. Antecedentes da tese

O Laboratório de Ensino e Pesquisa em Farmácia Social da Universidade Federal de Sergipe – Brasil (LEPFS/UFS) é uma iniciativa acadêmica, estabelecida em 2007, com o intuito de desenvolver atividades relacionadas ao ensino, pesquisa e extensão; além de formar profissionais capacitados para a execução de estudos na área da Farmácia Social. O LEPFS/UFS tem como missão inovar e formar para o cuidado ao paciente e para promoção do uso racional dos medicamentos.

Em 2008, a prática da atenção farmacêutica foi iniciada como atividade de pesquisa e ensino do LEPFS/UFS. Nesse ano, sob a orientação do Prof. Dr. Divaldo Lyra Júnior, duas alunas de mestrado, realizaram revisões sistemáticas com o objetivo de analisar a qualidade das pesquisas sobre atenção farmacêutica no acompanhamento de pacientes portadores de Diabetes Mellitus e Hipertensão Arterial Sistêmica (BALISA-ROCHA, 2010; AGUIAR et al., 2012a). Nestes estudos, foram observadas falhas na qualidade dos estudos, sobretudo no que concerne a carência de resultados farmacoeconômicos, de satisfação dos pacientes. (BALISA-ROCHA, 2010; AGUIAR et al., 2012a). E com base nestes dados em 2009, o LEPFS/UFS deu início a estudos envolvendo a prática da atenção farmacêutica em um grupo de idosos

portadores de Diabetes Mellitus e Hipertensão Arterial Sistêmica não controladas. (BALISA-ROCHA et al, 2012; AGUIAR et al, 2012b).

Concomitantemente foram tomadas as iniciativas no ensino da disciplina de atenção farmacêutica ofertada pelo Curso de Farmácia da UFS. Primeiro, os pesquisadores do LEPFS/UFS observaram a escassez de métodos educativos que estimulassem o aprendizado da atenção farmacêutica pelos discentes, bem como, a ausência de práticas clínicas que pudessem complementar os conteúdos teóricos apresentados na referida disciplina. Somado a isso, foi vivenciada a dificuldade em escalar pacientes reais para o atendimento do amplo quantitativo de estudantes matriculados na disciplina de atenção farmacêutica.

Em consequência, a fim de atender a tais necessidades, em 2009-2010, metodologias ativas começaram a ser introduzidas na disciplina de atenção farmacêutica. Entre estas estavam as simulações com *role play* e paciente simulado. Neste período, foi realizada uma revisão sistemática sobre o uso de métodos educativos, envolvendo pacientes virtuais, no ensino da atenção farmacêutica (JABOUR-LOPES et al., 2012). Os resultados desta revisão sistemática demonstraram a existência de poucos estudos sobre o tema e nenhuma publicação oriunda da América Latina (JABOUR-LOPES et al., 2012). Assim, foi evidenciada a necessidade de desenvolver práticas inovadoras de simulações utilizando o ambiente virtual de aprendizagem.

Diante dos fatores supracitados, em 2010, foi estabelecida uma parceria entre o LEPFS/UFS e o Departamento de Computação da referida universidade e foi desenvolvido o programa do paciente virtual denominado “PharmaVP” voltado para o ensino de competências para a prática da atenção farmacêutica. Este software foi posteriormente validado segundo a ISO/IECMº 9126 (2001) em um trabalho de doutorado do laboratório (BALISA-ROCHA, 2013). Em continuidade a estas iniciativas, de 2011-2014 outro trabalho foi realizado objetivando aplicar distintas metodologias ativas no ensino da atenção farmacêutica e avaliar o impacto destas intervenções educativas.

Ao mesmo tempo, o presente estudo foi realizado objetivando, a partir das contribuições obtidas pela percepção dos estudantes do curso de Farmácia da Universidade Federal de Sergipe, Campus São Cristóvão sobre sua formação para a prática farmacêutica centrada nos cuidados ao paciente e das opiniões junto aos especialistas sobre os conteúdos e habilidades recomendáveis para formação adequada a essa realização, avaliar as competências necessárias para a prática da atenção farmacêutica.

FUNDAMENTAÇÃO TEÓRICA

2. FUNDAMENTAÇÃO TEÓRICA

2.1. Histórico da profissão farmacêutica

O papel do farmacêutico tem se expandido nas últimas décadas. Além da tradicional atuação na fabricação e dispensação de medicamentos, o farmacêutico assume funções variadas, incorporando e enfatizando a importância do cuidado centrado no paciente. (BLEWETT et al., 2010; BABAR et al., 2013; BECKETT et al., 2014)

A profissão farmacêutica passou por grandes mudanças ao longo da sua existência. De acordo com Lin (2012), os proprietários de farmácia eram vistos como boticários e nunca frequentaram uma Faculdade de Farmácia; as informações sobre medicamentos e a doença eram fornecidas com base nas suas experiências após anos de prática. Várias práticas e métodos foram reproduzidos de modo artesanal. Não se inspecionavam as boticas, nem a venda de medicamentos. Posteriormente, iniciou-se nos Estados Unidos a aprovação de leis que exigiam diploma para o exercício da Farmácia; farmacêuticos começaram a prestar serviços, tais como manipulação de medicamentos, que passou a ser oficialmente uma responsabilidade do farmacêutico, enquanto ao médico cabia o diagnóstico. A obrigação primária da farmácia foi definida como a prestação de serviço ao público na preparação, preservação, composição, dispensação, estocagem e manuseio de medicamentos e material médico. O farmacêutico não discutia os efeitos da terapêutica ou composição de uma receita com os pacientes – assunto reservado aos médicos. Apenas grandes hospitais tinham farmacêuticos, mas seu papel era limitado em comparação aos farmacêuticos comunitários.

Na etapa marcada pela industrialização, houve substituição gradual das preparações farmacêuticas por produtos industrializados. Devido à perda de controle sobre o processo de produção de medicamentos e limitação das funções nas farmácias comunitárias, transformadas em drogarias, houve migração dos farmacêuticos para outras áreas, com análises clínicas e toxicológicas, bem como para a área de alimentos. Provocando mudanças no mercado de trabalho e no ensino, alterando o papel profissional do farmacêutico. Além disso, o medicamento era o foco da atenção e não o paciente; a farmácia comunitária passou a ser um canal de distribuição do medicamento e o farmacêutico perdeu parte do seu valor social (LIN, 2012).

As inquietudes, geradas pela mudança no papel da profissão farmacêutica, juntamente com problemas sanitários e econômicos causado pelo uso indevido dos medicamentos, facilitaram a evolução da prática e a mudança de enfoque. Foi observado que o método tradicional de distribuição de medicamentos não era mais adequado para garantir a segurança, eficácia e

adesão à farmacoterapia. Estudos apontaram gastos com hospitalizações, consultas médicas e exames laboratoriais devido aos erros relacionados com medicamentos. Nos Estados Unidos, cerca de 140 mil pessoas morreram de efeitos adversos de medicamentos e um milhão de pessoas foram hospitalizadas. No Reino Unido, em 2004 os custos da morbimortalidade associada a medicamentos foram de 466 milhões de euros. Uma pesquisa indicou que os farmacêuticos poderiam reduzir tais eventos (LIN, 2012; WHO, 2006).

Diante deste cenário e após diversas discussões sobre o tema, a aprovação de um novo perfil curricular voltado para a clínica, no início de 1960, levou ao surgimento da Farmácia Clínica, compreendida como uma atividade que permitiria novamente aos farmacêuticos participar da equipe de saúde, contribuindo com seus conhecimentos para melhorar o cuidado ao paciente e transformando a atuação do farmacêutico nos hospitais (HOLLAND; NIMMO, 1999, WHO, 2006).

Deste modo, no final da década de 60, o modelo de Farmácia Clínica começou a ser disseminado, nos hospitais americanos e depois em países como o Canadá, a Inglaterra e a Holanda (HIGBY, 1997; VAN MILL et al., 1999). O valor e aceitação dos serviços de farmácia clínica foram documentados pela primeira vez na década de 1970 e 1980 (WHO, 2006). A partir de então, diversos estudos, realizados em diferentes hospitais, têm demonstrado redução no tempo de internação, resultante de uma melhor qualidade no atendimento profissional; melhora da adesão à farmacoterapia; redução de problemas relacionados aos medicamentos e redução dos custos para pacientes e instituição com a presença do farmacêutico clínico junto às equipes de saúde no cuidado ao paciente (BISSON, 2003).

Para que isso seja possível, é necessário que o farmacêutico possua conhecimento especializado sobre a terapêutica, boa compreensão do processo saúde-doença e conhecimento dos produtos farmacêuticos. Aliado a isto, a farmácia clínica requer fortes habilidades de comunicação com sólidos conhecimentos da terminologia médica, habilidades de monitoramento de medicamentos, fornecimento de informações sobre medicamentos, habilidades de planejamento farmacoterapêutico e a capacidade de avaliar e interpretar resultados de exames físicos e de laboratório (HEPLER, 2004). Porém, a Farmácia Clínica estava restrita ao ambiente hospitalar e voltada principalmente para a análise da farmacoterapia dos pacientes, com o farmacêutico mais próximo apenas à equipe de saúde.

A fim de obter estes conhecimentos e habilidades necessários a nova postura de prática profissional, o ensino voltado para a clínica foi fortalecido com o maior enfoque nas áreas sociais e comportamentais. A partir do aprofundamento da prática profissional em

Farmácia, surgiu a Atenção Farmacêutica passando a ser o foco principal da prática farmacêutica, nas décadas posteriores à década de 60 (LIN, 2012).

2.1.1. A Atenção farmacêutica

Em 1975, Mikeal et al. afirmou que o farmacêutico deveria prestar "*a atenção que um dado paciente requer e recebe com garantias do uso seguro e racional dos medicamentos*". A construção do conceito da atenção farmacêutica foi definido pela primeira vez por Brodie, Parish e Poston (1980), como:

> *definição das necessidades farmacoterapêuticas de um dado paciente e a provisão não apenas dos medicamentos requeridos, mas também dos serviços necessários para assegurar uma terapia perfeitamente segura e efetiva*.

Neste sentido, situavam o medicamento em primeiro plano em detrimento do paciente (CIPOLLE; STRAND; MORLEY, 2000). Hepler (1987) destaca que o profissional é responsável pelo controle no uso dos medicamentos por meio de seus conhecimentos e habilidades adequados. No entanto, tendo o paciente como foco principal, durante o processo de atendimento farmacêutico, é essencial a construção da relação conveniente entre o farmacêutico e o paciente.

A partir dos conceitos publicados anteriormente, em 1990, Hepler e Strand utilizaram o termo "*Pharmaceutical Care*", que foi traduzido em nosso país para atenção farmacêutica. Neste artigo foi definido um conceito clássico da atenção farmacêutica como sendo:

> provisão da farmacoterapia com o propósito de alcançar resultados que melhorem a qualidade de vida do paciente, a saber: cura da doença, eliminação ou redução da sintomatologia do paciente, interromper ou retardar o processo de adoecimento ou prevenir uma doença ou sintomatologia (HEPLER, STRAND, 1990).

Este conceito foi discutido nas reuniões de peritos da Organização Mundial de Saúde (OMS), que promoveu diversas reuniões sobre o papel potencial dos profissionais farmacêuticos no sistema de saúde em vários países: em 1988, em Nova Delhi; em 1993, nos EUA e no Japão; em 1997, em Vancouver no Canadá, emitindo documentos que reviram o papel dos farmacêuticos nos cuidados com a saúde e reforçaram sua importância, dando mais reconhecimento à profissão (WHO, 1997; LIN, 2012; JESUS et al., 2012). A OMS (1993) reconheceu o papel fundamental do farmacêutico no sistema de atenção à saúde, em colaboração com outros membros da equipe, com respeito a atender as necessidades dos pacientes e assegurar o uso correto dos medicamentos. Assim, a atenção farmacêutica passou a ser adotada como nova prática profissional e foi conceituada como (OMS, 1993):

> *conjunto de atitudes, valores éticos, funções, conhecimentos, responsabilidades e habilidades do farmacêutico na prestação da farmacoterapia, com o objetivo de alcançar resultados terapêuticos definidos na saúde e qualidade de vida da população.*

Quase ao mesmo tempo, surgiu na Espanha o termo "Atención Farmacéutica", com o desenvolvimento de modelo de seguimento farmacoterapêutico, denominado Método Dáder, criado por um grupo de investigação em atenção farmacêutica da Universidade de Granada. Nesse país também foram realizados consensos para definir conceitos, modelos de acompanhamento e classificar os Problemas Relacionados aos Medicamentos (LYRA JÚNIOR, 2005; COMITÉ DE CONSENSO, 2007).

Segundo Lyra Júnior (2005) os modelos metodológicos mais utilizados por pesquisadores e farmacêuticos no mundo para a prática da atenção farmacêutica, na qual as necessidades dos pacientes com relação à farmacoterapia pudessem ser abordadas e documentadas de maneira sistemática e global, são o espanhol (Método Dáder de Seguimento Farmacoterapêutico) e o americano (*Pharmacotherapy Workup*). Entretanto, existem algumas diferenças entre os mesmos, principalmente no que diz respeito à classificação dos problemas relacionados com medicamentos (PEREIRA, FREITAS, 2008). Estes modelos destacam-se pelo número de farmacêuticos que os utilizam e pacientes atendidos (STRAND et al., 2004; FERNÁNDEZ-LLIMÓS; FAUS, 2002) e pelas publicações envolvendo sua aplicação em diferentes cenários (MILLER et al., 1996; FONTANA RASPADI; SOLA UTHURRY, 2003; SILVA CASTRO et al., 2004; ARMANDO et al., 2005; ESTRADA et al., 2014).

No Brasil, através do Consenso Brasileiro de atenção farmacêutica, o termo atenção farmacêutica foi adotado e oficializado a partir de discussões lideradas pela Organização Pan-Americana de Saúde, OMS, Ministério da Saúde, entre outros (OPAS, 2002). Nesse encontro, foi definido o conceito de atenção farmacêutica como:

> *um modelo de prática farmacêutica, desenvolvida no contexto da Assistência Farmacêutica. Compreende atitudes, valores éticos, comportamentos, habilidades, compromissos e co-responsabilidades na prevenção de doenças, promoção e recuperação da saúde, de forma integrada à equipe de saúde. É a interação direta do farmacêutico com o usuário, visando uma farmacoterapia racional e a obtenção de resultados definidos e mensuráveis, voltados para a melhoria da qualidade de vida. Esta interação também deve envolver as concepções dos seus sujeitos, respeitadas as suas especificidades bio-psico-sociais, sob a ótica da integralidade das ações de saúde* (OPAS, 2002).

Além do conceito de atenção farmacêutica, foram definidos nesse mesmo documento os macros componentes da prática profissional para o exercício da atenção farmacêutica, tais como: educação em saúde (promoção do uso racional de medicamentos), orientação farmacêutica, dispensação de medicamentos, atendimento farmacêutico, acompanhamento farmacoterapêutico e registro sistemático das atividades (OPAS, 2002).

Atualmente, a OMS e outras Associações Farmacêuticas de relevância internacional consideram que a atenção farmacêutica é atividade exclusiva do farmacêutico necessária para o desenvolvimento pleno de sua profissão.

2.2. O Ensino tradicional de Farmácia no Brasil

O ensino de Farmácia no Brasil se originou a partir da reforma do ensino médico em 1832 por membros da Sociedade Farmacêutica Brasileira e da seção de Farmácia da Academia Imperial de Medicina. Como resultado da reforma do ensino, as Academias Médico-cirúrgicas foram transformadas em Faculdades de Medicina e os cursos de Farmácia foram oficialmente criados, subordinados àquelas faculdades (VOTTA, 1965). Por esta reforma, ficou estabelecido que ninguém poderia "curar, ter botica, ou partejar", sem título conferido ou aprovado pelas faculdades de medicina (SILVA, 2009). Essa reforma instituiu um currículo com duração de três anos, contemplando disciplinas das áreas de: Física, Química, Botânica, Zoologia, Mineralogia, Medicina e Formulação Farmacêutica. A fase da Farmácia como curso independente da Medicina só se concretizou em 1839, na Escola de Farmácia de Ouro Preto, a primeira da América Latina a funcionar de maneira autônoma dos cursos médicos, na Bahia e no Rio de Janeiro, que servem de marco histórico para o ensino de Farmácia no Brasil.

A divisão acadêmica dos cursos baseava-se nas denominadas “cadeiras”, destacando-se: Farmácia Galênica, Farmacognosia, Botânica, Química, Física, Biologia, além de Mineralogia, cadeiras da área médica (terapêutica, toxicologia) e farmácia teórica e prática. Para obtenção do título, era necessário um treinamento prático de três anos, supervisionado por um boticário diplomado (SILVA, 2009). Uma nova reforma no ensino médico ocorrida em 1880 passou a exigir também História Natural para ingresso no curso de Farmácia (EDLER, 2006). Diversas mudanças continuaram a acontecer nos currículos dos principais cursos de Farmácia do Brasil, ora reduzindo o tempo de formação ora aumentando, variando de dois a quatro anos. Uma mudança bastante significativa ocorreu em 1911, no governo do Marechal Hermes da Fonseca, introduzindo Química Analítica, Bromatologia, Toxicologia e Química Industrial, imitando grosso modo os modelos europeu e norte-americano, voltados

essencialmente para a industrialização de medicamentos. A partir da década de 30, as reformas do ensino de Farmácia no Brasil visavam principalmente aproximar a formação das novas atividades de produção industrial de medicamentos e alimentos e da área de análises clínicas (EDLER, 2006).

Em 1969 o Conselho Federal de Educação estabelece o binômio Farmácia e Bioquímica, ficando a Farmácia como pré-requisito para o acesso às habilitações Farmacêutico Bioquímico (Análises Clínicas e Tecnologia de Alimentos) e Farmacêutico Industrial (SANTOS, 1999).

2.3. Avanços recentes e perspectiva para o Século XXI

Nas décadas de 1970 e 1980, o desenvolvimento da computação e da automação, com efeitos mais imediatos nos países desenvolvidos, facilitou o trabalho dos farmacêuticos, liberando mais tempo para a atuação deste em outras frentes, como a orientação aos pacientes sobre o uso de medicamentos. Houve mudança de paradigma, do foco "no medicamento" para o "paciente" (HIGBY, 2000).

Em 1975, o Educational Council of Pharmacy dos Estados Unidos identificou a necessidade de incluir nos currículos as disciplinas de Administração Farmacêutica e Ciências Sociais e Comportamentais – tópicos importantes para facilitar a atuação junto à comunidade, preparando para a implantação da Farmácia Social e, posteriormente, da Atenção Farmacêutica (WERTHEIMER, 1991).

No Reino Unido, de modo similar aos Estados Unidos, conforme relata Hassali et al. (2011), no início da década de 1980, esforços foram realizados visando identificar áreas que pudessem contribuir para o treinamento dos farmacêuticos, tendo sido apontadas as ciências sociais e comportamentais com o objetivo de melhorar o desempenho dos profissionais no cuidado às pessoas. Foram recomendadas as disciplinas psicologia, sociologia e antropologia para integrarem os currículos de Farmácia.

Na visão de Hassali et al. (2011), a Farmácia Social é a interseção das ciências fundamentais, clínicas e sociais, conforme modelo da Figura 1. A adoção de práticas inovadoras orientadas ao paciente tais como orientação para adesão ao uso de medicamentos e revisão da farmacoterapia domiciliar produzem bons resultados em termos de qualidade de vida dos pacientes e reduzem o tempo de cura, riscos de morte, dentre outros problemas associados.

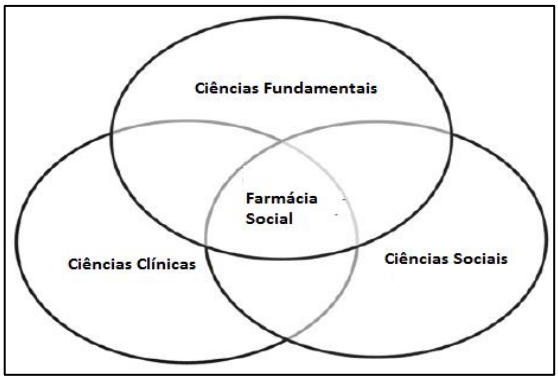

Figura 1 - Farmácia social como resultado da fusão de outras áreas da farmácia, adaptado de Hassali et al. (2011)

Um estudo detalhado sobre as transformações sofridas pelo ensino de Farmácia na Arábia Saudita mostrou semelhança com o processo evolutivo do currículo típico brasileiro, bem como com de muitos outros países (ASIRI, 2011). Esse processo evolutivo, baseado nos currículos das melhores universidades norte-americanas, culminou, em 2008, com a reestruturação do bacharelado em Farmácia e a implantação do programa "PharmD", que corresponde a cinco anos de formação.

No Brasil, o Conselho Nacional de Educação lançou a Resolução nº 02, de 19 de fevereiro de 2002, que estabelece as diretrizes curriculares nacionais para os cursos de Farmácia em conformidade com as exigências da Lei de Diretrizes e Bases da Educação nacional (BRASIL, 2002). No seu art. 4º relata que "a formação do Farmacêutico tem por objetivo dotar o profissional dos conhecimentos requeridos para o exercício das seguintes competências e habilidades gerais: I - atenção à saúde; II - tomada de decisões; III – comunicação; IV – liderança; V - administração e gerenciamento; VI - educação permanente". Os conteúdos devem contemplar disciplinas das áreas das Ciências Exatas, Ciências Biológicas e da Saúde, Ciências Humanas e Sociais, Ciências Farmacêuticas, em cujo bojo se inserem conteúdos teóricos e práticos.

2.4. Ensino e Aprendizagem

O ensino e a aprendizagem não podem ser vistos independentes ou separados, encontram-se interligados. A aprendizagem, na visão de Relvas (2007), está associada à construção de pontes entre a objetividade e a subjetividade, entre o ser que aprende e o ser que ensina, implicando valores de qualidades das interações sociais que o aprendiz estabelece

com as aprendizagens. A relação entre o que o professor faz e a efetiva aprendizagem do estudante é o que, mais apropriadamente, pode ser chamado de ensinar (CARVALHO, 2006).

Segundo Piascik al. (2011), os elementos para o bom ensino incluem: contato estudante-corpo docente, aprendizagem ativa efetiva (incluindo a aprendizagem cooperativa, feedback, tempo na tarefa), respeito pelos diversos estilos de aprendizagem, habilidades de comunicação efetivas, compromisso com o bom ensino. Cada instituição ou unidade deve discutir suas preferências e critérios para a avaliação.

Por sua vez, cabe aos docentes, domínio profundo do conteúdo do ensino, conhecimento teórico de estratégias de ensino, bem como capacidade de escolhê-las com objetivos pretendidos, além de motivar os discentes e a estes assumirem um papel mais ativo no processo de aprendizagem. Entretanto, de um modo geral, não há uma preocupação em conservar a motivação do universitário e, tampouco, em diminuir as dificuldades de aprendizagem, estabelecendo-se assim um ambiente propício para a construção do conhecimento (RUIZ, 2004).

Na profissão farmacêutica é grande a incompatibilidade na relação ensino-aprendizagem com relação ao desenvolvimento de uma miríade de habilidades indispensáveis ao exercício profissional. O excesso de abordagem teórica descarta o uso de métodos de ensino e avaliação adequados à obtenção de habilidades essenciais, influenciando negativamente no desempenho profissional dos estudantes (CORREIA et al., 2001; (SCOTT et al., 2010; MAYNARD et al., 2011; HASAN et al., 2013; BRANCH, 2014). Assim, a existência de várias estratégias de ensino, em prol da construção de conhecimentos e desenvolvimento de habilidades para a formação farmacêutica é um desafio para o docente e uma meta a ser cumprida pela instituição.

2.4.1. Desenvolvimento de competências na formação farmacêutica

A competência profissional dos farmacêuticos é considerada básica para o exercício da profissão e é muitas vezes utilizada como alternativa para avaliar resultados de educação em saúde, referindo-se à capacidade do profissional ou estudante em executar ações em um cenário da vida real (VATHANOPHAS; JINTAWEE, 2007).

Epstein e Hundert (2010), em seu artigo de revisão, conceituam de modo abrangente, competência como o "uso habitual e judicioso de habilidades de comunicação, conhecimento, habilidades técnicas, raciocínio clínico, emoções, valores e reflexão sobre a prática diária para o benefício do indivíduo e da comunidade que está sendo atendida". Aguiar e Ribeiro (2010) citam que a competência não é algo que se observa diretamente, mas pode ser inferida pelo

desempenho, e o desenvolvimento de tarefas e capacidades verificáveis pelo desempenho é que dão a noção da competência para determinada área profissional, a partir de padrões ou critérios definidos.

Watson et al. (2002) sugerem que a competência é definido de várias maneiras diferentes. Assim, há três formas de compreender competência: as tarefas relacionadas com habilidades; padronização de atributos essenciais para o desempenho e a reunião de conhecimentos, habilidades e atitudes adequadas para a prática profissional (KATOWA-MUKWATO et al., 2013). Neste contexto, o desenvolvimento combinado de capacidades cognitivas, psicomotoras e afetivas evidencia distintas maneiras de realizar, com sucesso, tarefas essenciais à determinada prática profissional, em diferentes contextos (LIMA, 2004). Em outras palavras, esse desenvolvimento ocorre pela assimilação de conhecimentos, integração de habilidades e adoção de atitudes relevantes para a obtenção de alto desempenho profissional (KATOWA-MUKWATO et al., 2013). Qualquer que seja a definição dada para competência, é inegável sua importância, em termos de condições profissionais satisfatórias, para assegurar uma real aprendizagem e cuidado ao paciente.

A OMS e a Federação Internacional Farmacêutica (FIP) organizaram um manual de prática farmacêutica com foco no atendimento ao paciente a fim de apoiar o modelo de atenção farmacêutica, definir o perfil do farmacêutico e descrever as sete principais competências do farmacêutico. A combinação de conhecimentos, habilidades e atitudes ganhou a denominação de “Farmacêutico Sete Estrelas”, apresentando as sete funções: cuidador, tomador de decisões, comunicador, gerente, aprendiz ao longo da vida, professor e líder (WHO, 1997; WHO 2006). A “Investigação” foi incluída como uma oitava categoria, para formar o farmacêutico “Oito estrelas” (WHO, 2006). Segundo a OMS, os farmacêuticos devem possuir conhecimentos específicos, atitudes, habilidades e comportamentos que justifiquem seus papéis (SARRIF et al., 2012).

Em contrapartida, recentemente foi publicado um documento dentro dessa mesma linha que define de modo mais claro as competências do farmacêutico em diferentes abordagens: focado na população (farmacêutico de saúde pública); no sistema (organização e gerenciamento); focado no paciente (atenção farmacêutica) e na prática (profissional/pessoal) (FIP, 2012). Esses documentos foram criados para atender às constantes mudanças da profissão, apoiar o desenvolvimento e desempenho profissional efetivo e sustentado e orientar profissionais, estudantes e professores de Farmácia do mundo inteiro.

Nesta perspectiva, o ensino de competências pode assumir diversas formas, a depender da própria abordagem conceitual acerca do que é competência. A etapa de formação

universitária é de fundamental importância para a capacitação profissional. Uma educação ideal no curso de Farmácia tem sido descrita como a que prepara os estudantes para a prestação de cuidados centrados no paciente. Isso demanda sólido domínio das habilidades clínicas fundamentais como: avaliação do paciente, orientação sobre a farmacoterapia e capacidade de se comunicar e lidar com os diversos tipos de pacientes, a fim de prepará-los adequadamente para a prática futura. As instituições de ensino superior que oferecem programas de Farmácia deveriam desempenhar esse papel, possibilitando e provocando uma participação ativa do estudante de farmácia em seu processo de aprendizagem. (FUHRMAN et al., 2001; TRONCON, 2007; DEPARTMENT OF HEALTH, 2008; TOKUNAGA et al., 2010; PARAIDATHATHU et al., 2011).

2.4.2. Metodologias ativas de ensino

É urgente de se rever, no contexto educacional do curso de Farmácia, o ensino, em suas diversas dimensões, em especial no que diz respeito às habilidades necessárias à prática profissional. Uma maneira de alcançar isso é complementar os métodos tradicionais de aprendizagem com o desenvolvimento e implantação de novas metodologias, como: aprendizagem baseada em equipe (BEATTY et al., 2009; LETASSY et al., 2008), aprendizagem baseada em problemas (CISNERO et al., 2002; ROMERO et al., 2010; WEBSTER; RIGGS, 2006), estudo de casos (SIMS, 1994), simulações de pacientes, aprendizagem baseada em discussão (MEDINA et al., 2008; STEWART et al., 2011), entre outros (GAVAZA et al., 2012), todos voltados a situações da vida real, contribuindo para o aperfeiçoamento do cuidado ao paciente com qualidade (JESUS et al., 2012).

Dentre as propostas de mudança tem se destacado a adoção de metodologias de aprendizagem ditas “ativas” que pronunciam a centralidade do processo no educando (ou “aprendiz”) e assumem o discurso por um ensino problematizador. A aprendizagem ativa ocorre quando os estudantes participam e se envolvem em alguma atividade que os obrigam a refletir sobre ideias e como usam essas ideias, por exemplo: trabalho em equipe, estudo de casos, métodos de discussão, exercícios escritos, apresentações dos estudantes, revisões pelos pares, leitura, escrita, questionamento de técnicas, debates e autorreflexão (GAVAZA et al., 2012). Segundo GAVAZA (2012), todos os métodos e técnicas utilizados apresentaram resultados satisfatórios.

Desde o advento da Farmácia Social, diversas estratégias, ferramentas, métodos e técnicas foram e continuam sendo desenvolvidas objetivando proporcionar simultaneamente melhor qualidade de vida para a sociedade, novos nichos de atuação para os farmacêuticos,

meios de atrair e motivar estudantes. Garantir ao estudante estratégias adequadas de ensino, favorecendo suas condições profissionais, a fim de garantir suas competências, tem sido objeto de preocupação de muitos estudiosos.

Segundo Campbell et al., (2012) a disciplina da atenção farmacêutica é um ambiente ideal para utilização da aprendizagem ativa, com o objetivo de levar os estudantes ao desenvolvimento das habilidades necessárias para avaliação do paciente, identificação e intervenção em problemas relacionados a medicamentos bem como estabelecimento de um plano de cuidado ao paciente.

2.5. Avaliação da Aprendizagem

A avaliação desempenha um papel fundamental na aprendizagem (BLACK; WILIAM, 1998), sendo utilizada como um dos aspectos complementares do processo ensino-aprendizagem. O processo de ensino-aprendizagem tem sido historicamente caracterizado de formas diferentes, que vão desde a ênfase no papel do professor como transmissor de conhecimento, até o papel do educando, como um processo integrado.

Segundo Perrenoud (1999), "*a função da avaliação é ajudar o estudante a aprender e ao professor a ensinar, determinando também quanto e em que nível os objetivos estão sendo atingidos*". Além disso, capta as necessidades e falhas do processo, mostrando a direção do processo de aprendizagem dos estudantes. Para Luckesi (1997), "*a avaliação da aprendizagem é uma prática de investigação do professor com a finalidade de intervir na busca de melhores resultados do processo de aprendizagem dos educandos*".

De acordo com Perrenoud (1999), a avaliação do processo de aprendizagem deve pautar pelas funções de: conhecer melhor o estudante, suas competências, seu modo de aprendizagem, seus interesses; constatar o que está sendo aprendido; adequar o processo de ensino aos estudantes; apreciar o processo de ensino-aprendizagem (análise e reflexão sobre o sucesso alcançado em função dos objetivos previstos e revê-los de acordo com os resultados obtidos). Para tanto é necessário acompanhar o desenvolvimento do estudante no processo de construção do seu conhecimento. Neste sentido, Haydt (1992), afirma que:

> a avaliação é um processo contínuo e sistemático. Portanto, esta não pode ser esporádica nem improvisada, mas, ao contrário, deve ser constante e planejada. Nessa perspectiva, a avaliação faz parte de um sistema mais amplo que é o processo ensino/aprendizagem, neste se integrando. (HAYDT, 1992, p. 13).

Haydt (1992) apresenta a avaliação da aprendizagem em três etapas: diagnosticar (investigar), controlar (acompanhar) e classificar (dar valor). Aliado a isso existem três

modalidades de avaliação: diagnóstica, formativa e somativa. A avaliação diagnóstica, também chamada de avaliação inicial, acontece antes de iniciar um determinado conteúdo, no qual o professor verifica os conhecimentos e habilidades prévios dos seus estudantes, procurando saber em qual nível eles estão.

Para Luckesi (2002, p.44), "*a avaliação diagnóstica será um instrumento fundamental para auxiliar cada educando no seu processo de competência e crescimento para autonomia*". Jorba e Santmartí (2003), afirmam que:

> a prognose e a diagnose do ponto de partida dos estudantes são um passo imprescindível para a criação de processo de ensino e aprendizagem, pois devem possibilitar a modificação das sequências e a adequação das atividades para responder às necessidades e dificuldades dos estudantes. Essa adaptação é essencial se pretendemos que o processo ensino-aprendizagem que vai começar, se sustente sobre bases sólidas, o que ajudará na obtenção do êxito desse processo (JORBA; SANTMARTÍ, 2003, p.27).

É por meio dessa avaliação inicial que o professor vai determinar se o estudante adquiriu os conhecimentos e habilidades e, se não o obteve, estes devem ser retomados (HAYDT, 1992; LUCKESI, 2002). Nesse aspecto:

> no início de cada unidade de ensino, é recomendável que o professor verifique quais as informações que seus estudantes já têm sobre o assunto, e que habilidades apresentam para dominar o conteúdo. Isso facilita o desenvolvimento da unidade e ajuda a garantir a eficácia do processo ensino-aprendizagem. (HAYDT, 1992, p. 20).

A avaliação formativa é a que acontece durante todo processo de ensino, fornece dados para aperfeiçoar o processo ensino e aprendizagem, ajudando o professor a adaptar o processo didático aos progressos e problemas da aprendizagem dos estudantes, informando se os objetivos foram ou não atingidos (HAYDT, 1992). Para entender essa dinâmica:

> a avaliação formativa, com função de controle, é realizada durante todo o decorrer do período letivo, com o intuito de verificar se os estudantes estão atingindo os objetivos previstos, isto é, quais os resultados alcançados durante o desenvolvimento das atividades. [...] É principalmente por meio da avaliação formativa que o estudante conhece seus erros e acertos e encontra estímulo para um estudo sistemático. (HAYDT, 1992, p. 17-18).

A avaliação somativa, acontece no final do processo de ensino-aprendizagem. Tem como objetivo, determinar o grau de domínio do estudante em uma área de aprendizagem, o que permite qualificá-los. Serve para verificar o que o estudante aprendeu depois de todo conteúdo apresentado pelo professor, podendo verificar se os objetivos mais gerais foram atingidos (HAYDT, 1992), como explica:

> a avaliação somativa, com função classificatória, realiza-se ao final de um curso, período letivo ou unidade de ensino, e consiste em classificar os estudantes de acordo com níveis de aproveitamento previamente estabelecidos, geralmente tendo em vista sua promoção de uma série para outra, ou de um grau para outro (HAYDT, 1992, p. 18).

Neste contexto, não se deve utilizar a avaliação apenas como instrumento de classificação. Na visão de Vasconcellos (2002, p. 57), esta tem que servir para uma "[...] *tomada de decisão quanto às providências a tomar rumo ao objetivo principal do processo ensino-aprendizagem que é o crescimento e a aprendizagem do estudante*". Para Luckesi (2002), a avaliação exercida apenas com a função de classificar estudantes, não dá ênfase ao desenvolvimento e em nada auxilia o crescimento deles na aprendizagem.

Essas três modalidades da avaliação são relevantes para que os professores e estudantes no que se refere aos seus desempenhos. Existe grande variedade de instrumentos avaliativos, os quais devem ser selecionados dependendo do objetivo que pretende o professor, sendo que o mesmo instrumento pode servir para diferentes modalidades de avaliação (JORBA; SANMARTÍ, 2003).

O professor também deve proporcionar aos estudantes várias situações para demonstrar que aprenderam e utilizar instrumentos diversificados que evidenciam as habilidades, desenvolvimento e aproveitamento dos mesmos. Para isso, não convém utilizar apenas um instrumento de avaliação. Segundo Domingos (2006), a utilização de um mesmo instrumento de avaliação, de forma repetida e exclusiva, não permite "visualizar" o estudante sob todos os ângulos, o que pode induzir em erros graves. Nessa perspectiva, Haydt (1988, p. 55), afirma que "[...] *quanto mais dados ele puder colher sobre os resultados da aprendizagem, utilizando instrumentos variados e adequados aos objetivos propostos, tanto mais válida será considerada a avaliação*".

Apesar disso, não devem ser quaisquer instrumentos de avaliação, mas aqueles apropriados para comprovar o estado de aprendizagem do estudante (LUCKESI, 2000). Segundo Hoffmann (2005), os melhores instrumentos de avaliação são aqueles que permitem a análise abrangente do estudante, auxiliando na compreensão significativa do processo. Na visão de Luckesi (2002), o professor precisa compatibilizar os níveis de dificuldade do que foi ensinado e aprendido pelos estudantes com os avaliados. Nesse sentido:

> um instrumento de avaliação da aprendizagem não tem que ser nem mais fácil nem mais difícil do que aquilo que foi ensinado e aprendido. O instrumento de avaliação deve ser compatível, em termos de dificuldade, com o ensinado (LUCKESI, 2002, p. 178).

Vasconcellos (1998) aponta os seguintes critérios que devem ter um instrumento avaliativo:

> - reflexivos: que levem a pensar, a estabelecer relações, superar a mera repetição de informação [...];
> - essenciais: ênfase naquilo que é fundamental, nos conteúdos realmente significativos, importantes, em consonância com a proposta de ensino;
> - abrangentes: o conteúdo da avaliação deve ser uma amostra representativa do que está sendo trabalhado, a fim de que o professor possa ter indicadores da aprendizagem do estudante na sua globalidade;
> - contextualizados: a contextualização é que permite a construção do sentido do que está sendo solicitado [...];
> - claros: dizendo bem o que quer. [...];
> - compatíveis: no mesmo nível do dia-a-dia: nem mais fácil, nem mais difícil [...]. (VASCONCELLOS, 1998, p. 68-69).

Como instrumentos avaliativos podemos citar os relatórios, roteiros de observação dos estudantes, atividades escrita, entrevistas, a autoavaliação do estudante dentre outros. Segundo Wass et al. (2001) a avaliação na educação farmacêutica, consiste no desenvolvimento de confiança, verificação do desempenho dos estudantes que, além de ter valor preditivo para a competência clínica subsequente, também têm um papel formativo.

A Tabela 1 mostra a comparação entre a concepção tradicional de avaliação com uma mais adequada a objetivos contemporâneos, relacionando-as com as implicações de sua adoção.

Tabela 1 - Comparação entre diferentes concepções de avaliação

Modelo tradicional de avaliação	Modelo adequado
Foco na promoção – o alvo dos estudantes é a promoção. Nas primeiras aulas, discutem-se as regras e os modos pelos quais as notas serão obtidas para a promoção de uma série para outra. **Implicação** – as notas são observadas e registradas. Não importa como foram obtidas, nem por qual processo o estudante passou.	**Foco na aprendizagem** - o alvo do estudante deve ser a aprendizagem e o que de proveitoso e prazeroso dela obtém. **Implicação** - neste contexto, a avaliação deve ser um auxílio para saber quais objetivos foram atingidos, quais ainda faltam e quais as interferências do professor que podem ajudar o estudante.
Foco nas provas - são utilizadas como objeto de pressão psicológica, sob pretexto de ser o elemento motivador da aprendizagem. É comum ver professores utilizando ameaças. **Implicação** - as provas são utilizadas como um fator negativo de motivação. Os estudantes estudam pela ameaça da prova, não pelo que a aprendizagem pode lhes trazer de proveitoso e prazeroso. Estimula o desenvolvimento da submissão e de hábitos de comportamento físico tenso (estresse).	**Foco nas competências** - o desenvolvimento das competências, previstas no projeto educacional, devem ser a meta em comum dos professores. **Implicação** - a avaliação deixa de ser somente um objeto de certificação da consecução de objetivos, mas também se torna necessária como instrumento de diagnóstico e acompanhamento do processo de aprendizagem.
Os estabelecimentos de ensino estão centrados nos resultados das provas e exames - estes se preocupam com as notas que demonstram o quadro global dos estudantes, para a promoção ou reprovação. **Implicação** - o processo educativo permanece oculto. A leitura das médias tende a ser ingênua (não se buscam os reais motivos para discrepâncias em determinadas disciplinas).	**Estabelecimentos de ensino centrados na qualidade** - os estabelecimentos de ensino devem preocupar-se com o presente e o futuro do estudante, especialmente com relação à sua inclusão social (percepção do mundo, criatividade, empregabilidade, interação, posicionamento, criticidade). **Implicação** - o foco da escola passa a ser o resultado de seu ensino para o estudante e não mais a média do estudante na escola.
O sistema social se contenta com as notas - as notas são suficientes para os quadros estatísticos. Resultados dentro da normalidade são bem vistos, não importando a qualidade e os parâmetros para sua obtenção. **Implicação** - não há garantia sobre a qualidade, somente os resultados interessam, mas estes são relativos. Sistemas educacionais que rompem com esse tipo de procedimento tornam-se incompatíveis com os demais, são marginalizados e, por isso, automaticamente pressionados a agir da forma tradicional.	**Sistema social preocupado com o futuro** – preocupação com a sólida formação e a qualidade profissional, o que torna decisivo do ponto de vista nas ações em saúde. **Implicação** - valorização da educação de resultados efetivos para o indivíduo.

Adaptado de Luckesi (2002)

2.5.1. Avaliação de competências clínicas

Para promover conexões mais fortes entre ensino, aprendizagem e avaliação, nas últimas décadas, há crescente reconhecimento da necessidade de mudança na avaliação da aprendizagem (MAK; LEE. 2014). Se o ensino de competências clínicas tem sido modificado, com diversificação de cenários, os métodos de avaliação dessas competências precisam ser adaptados a essa nova realidade. Outros métodos de avaliação de competências devem ser colocados em prática para ajudar a determinar se os estudantes alcançaram o nível de competência necessária para a prática como profissional.

Miller et al., (1996) propôs um modelo hierárquico de avaliação da competência clínica que diferencia o nível da "ação" (fazer) dos outros níveis considerados inferiores (saber, saber como e mostrar como) (Figura 2). Avaliar a "ação" significa avaliar o que ocorre na prática. O seu modelo é um instrumento útil para avaliação clínica e é amplamente aplicado em muitos ambientes educacionais (RETHANS et al., 2002; CORBO et al., 2006; SCHWARTZMAN et al., 2013; BRANCH, 2014).

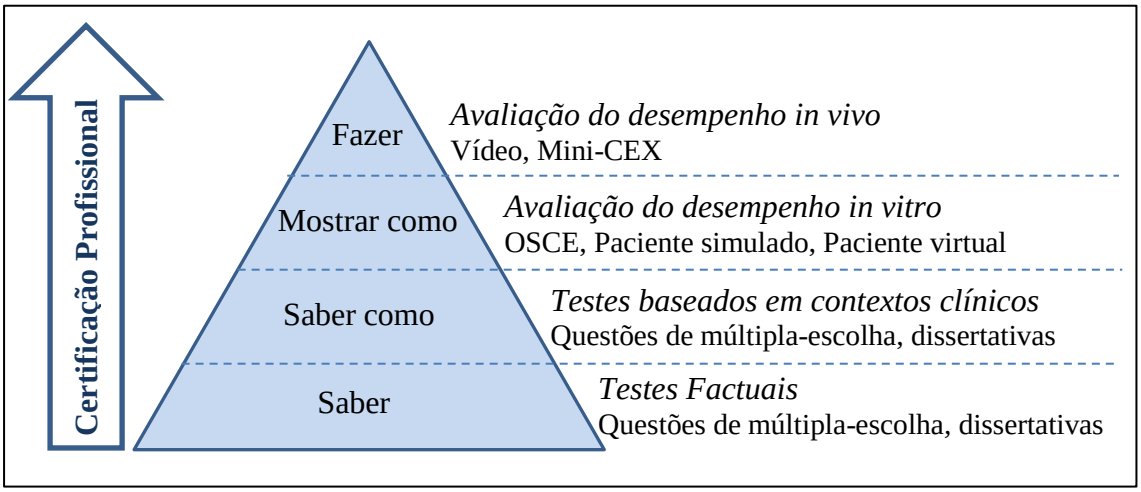

Figura 2 - Pirâmide de competência, adaptado de Miller et al., (1996)

A base se refere ao “saber” que reporta ao componente de competência, conhecimento (dos fatos, princípios e teorias). O segundo nível é o “saber como fazer”, que envolve habilidades para resolver problemas e descrever procedimentos (conhecimento aplicado). Embora nos últimos anos inúmeros métodos tenham sido desenvolvidos e utilizados na avaliação dos estudantes de Farmácia, a maioria destes ainda tende a enfocar o "saber" ou "saber como", essenciais, mas insuficientes para compor a competência clínica. Esses níveis podem ser avaliados por testes de múltipla escolha, exame oral, dissertações ou trabalhos escritos, estudos de caso, cenários clínicos simulados (WASS et al., 2001).

O próximo nível é o “mostrar como fazer”, que envolve a demonstração de habilidades em situação padronizada como simulações clínicas em geral, o “caso longo” e o exame clínico objetivo estruturado. O nível mais desafiador para avaliação encontra-se no topo da pirâmide ("fazer"), visto que isso só pode ser efetivamente testado quando o estudante é observado em situação de prática com pacientes reais em ambiente de trabalho, com sua imprevisibilidade e com os aspectos emocionais envolvidos. Esta é uma avaliação com base no desempenho em que o estudante tem de demonstrar competência em uma situação cotidiana complexa (BRANCH et al., 2014).

Os portfólios com documentação das experiências clínicas em um período determinado de tempo e autorreflexão têm sido usados como instrumentos de avaliação do que se fez (WASS et al., 2001). Uma opção complementar de avaliação é o *Mini CEX* (*mini-clinical evaluation exercise*), que consiste na observação estruturada da prática com guia de verificação ou *checklist*, na qual se atribuem notas de avaliação global para diversos itens de atitudes e habilidades, seguida de *feedback*, com duração total de 20-30 minutos, que pode ser repetida várias vezes para o mesmo estudante, aumentando a validade do método (NORCINI et al., 2003).

A faceta mais importante da competência exigida por um profissional qualificado, ou seja, o “mostrar como”, exige que o estudante demonstre o que poderia executar em um ambiente simulado. Este fator é comportamental, em vez de função cognitiva (BRANCH et al., 2014). A avaliação das habilidades clínicas que mede o nível de competência alcançado pelo estudante é uma tarefa complexa, que muitas vezes coloca muitos desafios aos educadores. A competência dos estudantes têm sido avaliada usando questões de múltipla escolha e dissertativas (AWAISU et al., 2010). Questões de múltipla escolha, ensaios e exames orais poderiam ser usados para testar os conhecimentos (WASS et al., 2001), no entanto, estes métodos de avaliação não podem avaliar adequadamente o domínio de habilidades essenciais e mensurar a aprendizagem cognitiva em contextos clínicos (MONAGHAN et al., 1995; STOWE, GARDNER, 2005). São necessários outros métodos para avaliar o desempenho clínico.

O “caso longo”, também utilizado para avaliar o “mostrar como” da pirâmide de Miller et al. (1996), no qual o estudante examina um paciente e depois apresenta o caso completo para o examinador de forma não estruturada. No formato tradicional é um método que permite avaliar a integração do conhecimento pelo relato da interação do estudante com o paciente, mas é questionado por suas propriedades psicométricas, particularmente de validade. A inclusão de observação direta e o aumento do número de casos longos avaliados por

estudante são estratégias para contornar estes problemas e recuperar a credibilidade do método na avaliação clínica (WASS; VAN DER VLEUTEN et al., 2004).

A utilização das simulações em geral, no ensino e na avaliação de habilidades clínicas, apresentam atualmente grande difusão e alta diversidade de recursos, porém não substitui o paciente real, que sempre terá um papel central na educação dos profissionais da área da saúde. O uso de várias modalidades de simulações deve ser complementar ao uso de pacientes reais, antecedendo a essa prática, de modo a permitir que atividades educacionais envolvendo o binômio estudante-paciente sejam desenvolvidas com mais segurança e menor desgaste para as partes envolvidas, podendo preparar melhor o estudante para o trabalho com pacientes reais.

A sessão de simulação necessita de preparação e para a sua realização requer facilitadores competentes, com conhecimento adequado e capacidade de adaptação aos cenários de simulação. A simulação utilizando um programa de computador pode ser melhor para acomodar turmas grandes, no entanto as licenças e renovações podem ter altos custos. Além disso, o software pode se tornar obsoleto quando novidades são incorporadas às novas versões (CURTIN et al., 2011).

2.6. Exame Clínico Objetivo Estruturado (OSCE)

Um método considerado padrão, desde a sua introdução, como modelo de avaliação de competências clínicas de estudantes da Universidade de Dundee em 1975, por Haden e colaboradores, é o exame clínico objetivo estruturado (OSCE) (HARDEN et al., 1975; HODGES, 2003; KUBOTA et al., 2011). O OSCE é um método abrangente, sistemático e objetivo de avaliação, que avalia o desempenho do aprendiz em situações delimitadas, baseadas em um roteiro predefinido (usando um conjunto de critérios estruturados) em que há interação com paciente padronizado (geralmente um indivíduo treinado para retratar o problema de um paciente) por meio de tarefas clínicas “estações” de avaliação em rodízio (REZNICK et al., 1993; MARKS; HUMPREY-MURTO, 2005; BHAT; ANALD, 2006; GORMLEY, 2011; KATOWA-MUKWATO et al., 2013).

O exame tem características de flexibilidade e de versatilidade, mas o OSCE é mais difícil para organizar e requer mais material e recursos humanos (BARMAN, 2005). Byrne e Smyth (2008) descreveram OSCE como a abordagem para a avaliação dos estudantes em que a competência clínica é avaliada de forma abrangente, consistente e estruturada, com muita atenção para a objetividade do processo. O OSCE foi originalmente concebido como uma solução adequada para as dificuldades de amostragem e de padronização comum com os

métodos tradicionais de avaliação de competências clínicas (WASS et al, 2001; TURNER; DANKOSKI, 2008; MARWAHA, 2011).

HARDEN et al. (1975) recomendaram o OSCE como uma alternativa dos métodos tradicionais de teste clínico, devido às suas vantagens e por atender aos critérios fundamentais de uma ferramenta de avaliação efetiva: objetividade, confiabilidade e capacidade de testar múltiplas competências de uma forma controlada, padronizada eliminando assim, variação nos resultados dos candidatos (AUEWARAKUL et al, 2005; TURNER; DANKOSKI, 2008; GORMLEY, 2011; MARWAHA, 2011). Este método permite testar uma variedade de conhecimentos e atitudes, sendo aceito como instrumento adequado para medir as habilidades de raciocínio clínico (BHAT; ANALD, 2006; SHADIA et al, 2010; KATOWA-MUKWATO et al., 2013). Ao contrário do exame clínico tradicional, o OSCE pode avaliar o desempenho das áreas mais críticas das profissões da saúde, tais como a capacidade de se obter ou interpretar dados, resolver problemas, habilidades de comunicação, tomada de decisão e de lidar com um comportamento imprevisível do paciente (ZAYYAN, 2011).

A alta qualidade do modelo OSCE pode ser comprovada pelo seu emprego crescente na formação de diversos profissionais em todo o mundo e tem sido amplamente utilizado na área de Farmácia (SHADIA et al., 2010; BRANCH et al., 2014). As contribuições relevantes da literatura revelam que a utilização do OSCE no ensino de graduação e pós-graduação em Farmácia são importantes para avaliar a formação de profissionais competentes, capazes de prestar o cuidado à população (AWAISU et al., 2007; CORBO et al., 2006).

Segundo a literatura, este exame foi usado para testar vários aspectos da competência clínica nos cursos de graduação e pós-graduação, com a contabilidade de graduação para a maioria dos estudos. Foram incluídos nos cursos de Farmácia Clínica (AWAISU; MOHAMED, 2010; AWAISU et al., 2010), laboratórios de cuidados ao paciente, prática e cursos práticos avançados de Farmácia (RUTTER; HUNT, 2003; AUSTIN; GREGORY; TABAK, 2006; MESZAROS et al., 2009), aprendizagem baseada em problemas (SALINITRI et al., 2012; ADOME; KITUTU, 2008) e módulos de terapêutica e farmacoterapia (STOWE; GARDNER, 2005; HASTINGS et al., 2010; STURPE; HUYNH; HAINES, 2010).

Em uma pesquisa realizada por STURPE (2010) mostrou que 32 programas dos Estados Unidos usaram OSCE, mas não explicaram em que estágios este modelo foi introduzido. Dois estudos do Reino Unido informaram sobre a incorporação do OSCE em todas as fases dos quatro anos do programa de licenciatura de uma escola de Farmácia (EVANS et al., 2011; KIRTON; KRAVITZ, 2011). No Brasil, as publicações mais comuns são na área Médica. Uma aplicação do OSCE na área de Farmácia foi publicado por Galato et

al. (2011) para avaliar o desempenho da prática profissional dos estudantes do último ano do curso. Foi observado que havia necessidade de reorientação dos estudantes de Farmácia Clínica para melhorar suas habilidades de comunicação, e obter um conhecimento mais profundo sobre medicamentos e problemas de saúde, a fim de orientar adequadamente seus pacientes.

A literatura revela que a metodologia OSCE vai além dos cursos de graduação em Farmácia, podendo atingir também a pós-graduação, buscando sempre assegurar a continuidade da competência profissional (McROBBIE et al., 2006; LAU; DOLOVICH; AUSTIN, 2007).

OBJETIVOS

3. OBJETIVOS

3.1. Objetivo geral

Avaliar as competências necessárias para a prática da atenção farmacêutica.

3.2. Objetivos específicos

- Avaliar a percepção de um grupo de estudantes do Curso de Farmácia da Universidade Federal de Sergipe, Campus São Cristóvão, sobre sua formação para a prática farmacêutica centrada nos cuidados ao paciente;
- Identificar estudos na literatura sobre o ensino da atenção farmacêutica no mundo;
- Obter junto aos especialistas conteúdos e habilidades recomendáveis para formação adequada à prática da atenção farmacêutica;
- Avaliar as competências dos estudantes para a prática da atenção farmacêutica.

RESULTADOS

4. RESULTADOS

A seguir no Capítulo I serão apresentados os resultados obtidos da avaliação da formação atual no Curso de Farmácia da Universidade Federal de Sergipe em forma de artigo intitulado como "Assessment of students' perception on the lack of preparedness to the pharmaceutical practice", seguindo as normas do periódico científico ao qual foi submetido (Journal of Research in Science Teaching).

No Capítulo II serão expostos os resultados dos principais trabalhos da literatura envolvendo o ensino da atenção farmacêutica, obtidos a partir de uma revisão sistemática que tem como título "Education in pharmaceutical care: a systematic review", **aceito** para publicação no African Journal of Pharmacy and Pharmacology.

No Capítulo III serão demostradas as opiniões de um grupo de especialistas em relação aos conteúdos e habilidades recomendáveis para formação adequada à prática da atenção farmacêutica, que tem como título "Developing a learner-centered pharmaceutical care course using a focus group approach" e seguiu as normas do periódico científico ao qual foi submetido (Qualitative Health Research).

No Capítulo IV será mostrada a avaliação das competências necessárias pelos estudantes de farmácia para a prática da atenção farmacêutica, seguindo as normas do periódico ao qual será submetido (Patient Education and Counseling).

CAPÍTULO I

4.1. CAPÍTULO I: Assessment of students' perception on the lack of preparedness to the pharmaceutical practice

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ABSTRACT
The pharmacy profession has experienced deep changes since the first courses focused on the preparation and medication dispensation, evolving, in recent decades, to incorporate and highlight the importance of patient-centered care. To attain this professional goal, pharmacy education has also changed towards patient-focused teaching and practice aiming to prepare students to become skilled pharmacy practitioners capable to act in the health care setting. This study aimed to analyze students' perception about preparedness to pharmacy practice and to the patient-centered care and identify barriers related to experiential training through the technique of interviews with focus group consisting of two groups comprising a total of 25 participants who were submitted to similar questions regarding to students' points of view about their guidance for pharmacy practice and patient care. Based on a content analysis of the collected answers, we believe that there is a significant gap in the pharmacists' formation at the assessed school, with a strong emphasis on theoretical issues and minor focus on practice knowledge acquirement and interpersonal communication, teaching methods more devoted to a one way learning in which the student is viewed as a passive individual, giving arise to poor professional formation, relationship barriers not only with patients but also with other health professionals. In general, students do not feel prepared to deal with patients. The study revealed that Pharmacy students need to domain essential clinical skills to patient care, providing better therapeutic results, collaborating effectively with other health professionals. For the future, the study demands a curricular reform, considering appropriate methods of teaching and performance assessment, an increase in situational and experiential workplace factors to permit development of pharmacy practice skills to deal with patients and to establish an effective relationship with other health care professionals, and all these factors contribute to deliver improved pharmaceutical care. For the future, the study points to the necessity of a curriculum reformulation to encompass all the pointed out weaknesses, allowing that students can be effectively part of a clinical team.

Keywords: pharmaceutical care, pharmacy education, skills, competences

1. INTRODUCTION

Over the last two decades pharmacy practice, once focused primarily on medicines and their supply, has been re-professionalized with patient-centered care as its focus. (Bond, 2006; Hassali, Shafie, Al-haddad, Abduelkarem, Ibrahim, Palaian et al., 2011; Koster, Blom, Philbert, Rump, & Bouvy, 2014). As a result of the paradigm shift within the profession, pharmacists are now more involved in direct patient care (Academic Medical Centers, 2010). According to the literature, this shift to the social context requires rethinking the process of professional formation. (De Oliveira, 2011; Koster et al., 2014).

In this new scenario, the formation of these professionals is a challenge that demands the competences required to enable the provision of patient-centered care (Fuhrman, Buff, Baddy & Dollar, 2001; Troncon, 2007). According to the WHO, pharmacists must have knowledge, skills and attitudes specific in this new role (Sarrif, Nordin & Hassali, 2012). In agreement with Hassali et al. (2011), to be effective in their actions pharmacists need to be well prepared to deal with the patients. Various studies have reported the positive role of clinically trained pharmacists as mentioned by other healthcare professionals (Hanlon, Weinberger, Samsa, Schmader, Uttech, Lewis et al., 1996; Papadopoulos, Rebuck, Lober, Pass, Seidl, Shah et al., 2002; Krupick, Bratton, Sonnenthal & Goldstein, 2002; Mckee, Frei, Garcia, Fike & Soefje, 2011).

According to De Oliveira (2011), the teaching model based on objective, measurable and linear knowledge no longer seems to be the most appropriate, given the new responsibilities of pharmacists, demanding changes in the educational model and curriculum of universities (Hassali et al., 2011). Undergraduate curricula shifted towards the integration between science and practice, focused in clinical pharmacy as an instrument to attain higher quality in patient-centered care services (Earl & Reinhold, 2014), emphasizing pharmacists' developing and skills assessment, comprising clinical decision making (Richir, Tichelaar, Geijteman, & De Vries, 2008), which are essential for a successful patient care. Previously, Wertheimer (1991), Harding & Taylor (1997) had already discussed the importance and the need to include social pharmacy disciplines in the standard undergraduate curricula.

In fact, the professional standard of pharmacy still varies significantly across the world (Azhar, Hassali, Ibrahim, Ahmad, Masood & Shafie, 2009). Several countries have carried out changes in teaching for the acquisition of new competences by students of Pharmacy. (Hassali et al., 2011; Blom, Wolters, Ten Hoor-Suykerbuyk, Van Paassen & Van Oyen, 2011; Koster et al., 2014). In order to prepare professionals to deliver hospital pharmacy services with clinical pharmacy and pharmaceutical care, universities from many country have included clinical pharmacy in their curricula. Pharmacy curricula of many United States and Europe school suffered deep changes by including broad areas of pharmaceutical chemistry, pharmaceutics, pharmacology and therapeutics, viewed as important tools for pharmacy training programs. These actions driven some changes in terms of teaching and learning pedagogies. The adoption of system-based training including teacher-centered and student-centered strategies as well as large amount of guidance also comprising skills-based teaching and learning, addressing the competences required to allow the providing of patient-centered care (Hasan, Wong, Ahmed, Chong, Mai, Pook et al., 2013).

In the Netherlands, the changes made in the curriculum of Pharmacy focused on improving the skills of the future pharmacist through the extensive training of the student. At the end of the course, the students leave licensed to practice in community pharmacy and hospital (Blom et al., 2011). In Brazil, although the National Curriculum Guidelines of the Ministry of Education for the School of Pharmacy - Resolution CNE/CES 02/2002 (BRASIL, 2002) represent a conceptual, structural and philosophical change in the pharmacy profession, consistent with the new responsibilities, most schools and diploma in Pharmacy courses do not include essentials for clinical practice (Brasil, 1996; Oliveira, Oyakawa, Miguel, Zanin,

Montrucchio & Prehs, 2005; Silva, 2009). As stated by Fernandes (2014), "the emphasis of the training is in Basic Sciences, with technical approach, and does not provide a satisfactory training to work as a health professional and to act in a pharmacy".

According to Blom et al. (2011) and Hassali et al. (2011), changes in curricula must prepare future pharmacists for the practice of drug therapy. Universities must adapt their curricula, aiming at students' general education, allowing their performance with competence and responsibility in the relationship with the patients, but it is essential to better understand student views on the importance of offering clinical services practice after a given curriculum adjustment and the extension of pharmacists' functions. In this context, the objective of this study is to evaluate the perception of Pharmacy students about their formation, focusing on the suitability for professional practice centered on patient care.

2. METHODS

2.1. Study design

The study was developed as part of the syllabus of an undergraduate course in pharmaceutical care at Undergraduate Pharmacy Program at Federal University of Sergipe, during the first semester of 2013. Focus group methodology (Krueger & Casey, 2000) was adopted due to its peculiar way of collecting qualitative data, that essentially consists of gather together a small number of people in an informal discussion group, with the purpose of focusing around a given topic or set of issues (Wilkinson, 2004). The main benefit this technique relies on its informal approach, in which the moderator(s) actively incites interaction between group participants as an alternative of raising questions to each individual (Wilkinson, 2004). This establishes a favorable situation where each person feel free and helps interviewees to be more communicative (Hammersley & Atkinson, 2007) and to investigate deeper the main issues (Kontos & Naglie, 2009). In addition, the informal environment make the interaction easier and smooth the progress of discussion and reflection that is difficult to reach using other approaches (Hoyland, Haugen & Thomassen, 2014).

2.2. Participants

The total number of participants was 25 people of the same age group and members of the same level in the course. The sample was randomly subdivided into two focus groups containing 12 and 13 components, respectively. Each focus group interview session took around 2 hours, and during the session all the participants were encouraged to contribute.
Some authors reports focus group size ranging from four (minimum) to twelve (maximum) participants (Bender & Ewbank, 1994; Kitzinger, 1995; Ramani, Orlander, Strunin & Barber et al., 2003; Cameron, 2005; Munday, 2006, Stewart, Shamdasani & Rook, 2007; Carlsen & Glenton, 2011; Krueger & Casey, 2009). Krueger & Casey (2000) state that small groups have some advantages like less pauses and consequently more available time per capita, allowing everyone to assign their perceptions. The main disadvantage of this strategy is the natural limit on the overall diversity of opinions that can be extracted (Hoyland et al., 2014).

Each group intervied conducted by one moderator supported by an assistant. Each focus group interview was registered through audio recording authorized by each one of the participants. Moderators agreed that their personal opinions should not be given during the session. To enrich the discussion, moderators used open-ended questions such as: "This is an interesting point. Can you give us any additional details?"

2.3. Interviews

An interview guide for the focus group interviews was created and tested among a group of students (n = 7) not joined in the course that acted as collaborators to evaluate the

comprehension by the respondents. The guide focuses on the two key questions to motivate forward discussion by the participants as follow: (1) In our opinion, does the course gives you the right preparedness to the pharmaceutical practice? (2) Does the course prepare you to patient-centered care? Depending on the answers, moderators stimulated the respondents to be clearer or more complete. In certain situations, the doubts of interviewees triggered other questions to find out more details or to improve the comprehension.

The completion of each focus group session occurred when the discussion was over and the participants had no further questions or doubts about a specific issue.

2.4. Ethical aspects of the research

The participants of the study were invited to ratify their collaboration by signing a free agreement confidentiality term when they were advertised about of the goals, procedures, possible discomforts and expected benefits of the research. Likewise, this work was approved by the ethic and research committee of the university.

2.5. Data analysis

For qualitative evaluation, responses to the above questions were subjected to a content analysis based on Bardin (2011) methodology, according to the following steps: (1) pre-analysis - consisting of an overview reading; (2) exploration of materials - encompassing the identification of sense nuclei attached to the categories related to the central theme (“lack of preparedness to the professional practice”), by stratifying data collected from the main pieces of speech and selecting those ones that better reports the view point of respondents; and (3) processing and interpretation of results – consisting of a confrontation between the results and related works from the literature.

3. RESULTS

Most individuals surveyed were female (73.33%), aged between 21 and 25 years (86.67%), attending the fourth year (96.67%). The members of both focus group identified various causes for the lack of skills needed for professional practice, which are summarized in Figure 1.

The presentation of the results using Ishikawa diagram was provided by detailed analysis of verbal comments from participants. To facilitate analysis of the results, the root causes will be discussed in depth in the following items, along with key interview pieces.

3.1.Infrastructure

The participants of the groups pointed to the lack of a community pharmacy school as the main deficiency of the course in the context of practical training, as sustained by the following statements:

"Actually, I think that we need a community pharmacy school here at the University".

"With the community pharmacy school, we would experience the true reality".

"Give us experience, understand? It would be something that really prepare the student; give us the knowledge, the safety to attend the patient. The community pharmacy school would serve to provide such support for us".

In fact, the Federal University of Sergipe still does not have this item in the Pharmacy Department, which is a type of laboratory highly indicated for improving professional learning used in various Brazilian universities.

The Community pharmacy school is an extension branch of Pharmacy course which functions as a space of mixed character: laboratory-company, and can provide students with a variety of amenities, such as: curricular traineeships guided by a teacher; an increase in the quality of education; provision of medicinal products handled at low cost for the university hospitals; integration between health professionals; integration of theory and practice; contact of the students with the social reality of the community and with the market, in addition to provide for the learning of responsibilities, skills and creativity, both of which are vital to the future of pharmacists (Rossignoli, Correr & Fernández-Llimós, 2004).

According to Mitre, Siqueira-Batista, Girardi-de-Mendonça, Morais-Pinto, Meirelles & Pinto-Porto (2008), in community pharmacy school environment, "the student ceases to be a passive receiver of content and the teacher assumes a posture of educator, facilitator, which allows and causes an active participation of the student in his learning process". This approach is in agreement with the expectations of students interviewed, as reported in their testimonials.

The students also demanded the use of University Hospital as a common place for the professional practice of students including from other courses of the area of health sciences. Today, only the students of Medicine, Nursing, Physiotherapy and Dentistry make effective use of this educational resource.

As Pharmacy students course the subjects Hospital Pharmacy and pharmaceutical care, the above claim is well founded, because they could integrate clinical teams, receive training or even by increasing the number of classes in the hospital, having effective and frequent contact with patients and accessing their records. What is practiced today are visits to the hospital, without possible intervention in the treatment of patients.

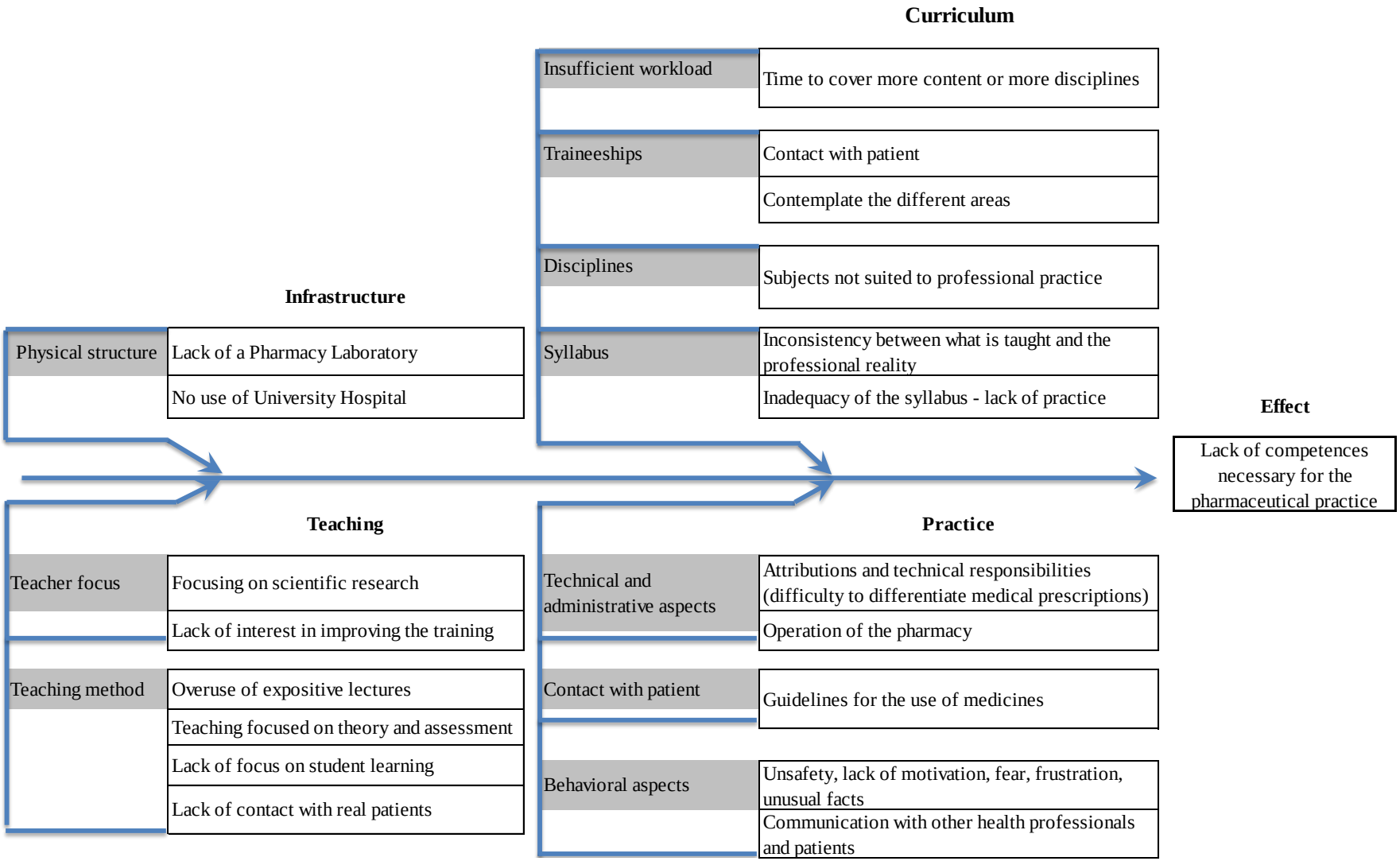

Figure 1. Ishikawa diagram to evaluate the causes of the lack of skills needed for pharmacy practice

3.2. Curriculum

The aspects mentioned by the participants of the focus groups, classified by the moderators as curricular in nature, were the following: insufficient workload in some key disciplines, requiring more time to cover more content or more disciplines, such as Pharmacology and Pharmaceutical Care (too much content and very little time); traineeships do not meet the aspirations of students, because contact with real patients is very little and the coverage is limited; practical classes that are configured, in the words of the respondents, as "theory of practice"; and inconsistencies between knowledge acquired at university and what is actually played in professional practice, perpetuating the maxim that "what is all right in practice, it will never work in theory. Unsuitability of the syllabus and lack of practical classes were also mentioned by respondents during the focus group meetings. Here are some pieces from interviews with students in this context:

Piece 1: *"The pharmacist is the professional of medicines ... I find an absurd the professional pharmacist studying only a Pharmacology... We leave without studying about oral antidiabetics, antiparasitics, and we learn very little about antibiotics".*

Piece 2*:"There is only a subject in Pharmacology to cover too much topics...".*

Piece 3:*"I think that we should study Pharmaceutical Care I and Pharmaceutical Care II and, to expand the syllabus and improve the learning...".*

The Pharmacy course at Federal University of Sergipe is a five year course and meets the curriculum guidelines of the Ministry of Education that establishes a minimum of 4,000 hours to complete the bachelor undergraduate course. Therefore, under these criteria, the curriculum is appropriate and legitimate, but these numbers alone do not give quality assurance to the course do not guarantee the suitability to local and regional reality. The judgment of these aspects is subjective and it depends on contributions such as those presented in this work.

If we consider the claim that "more time is needed to cover more content or more disciplines", as was mentioned during one of the focus group sessions, obeying simultaneously Brazilian curriculum guidelines, it would be required, for example, adjust the workloads of the disciplines of basic training or to reduce the number of optional disciplines or better still increasing the duration of the course, which is a subject that would cause great controversy, since there are recommendations of Brazilian Ministry of Education to limit the duration of the course around 4.000 h or 5 years.

The call for exercising the practical side of the course was also contested by the respondents when referred to the "need for internships including contact with real patients and contemplating the different areas of expertise of the pharmacists", as the following statements:

Testimony 1: *"There is no contact with the patient. The only contact I remember..., really, was in Clinical Pharmacy - an optative subject";*

Testimony 2: *"See my case: I'm doing internship .... no Oncology here in our course! So, that is what I say ... I think it does not prepare you for the reality!*

Testimony 3: "*I had no experience in SUS (Brazilian Unified Health System). I think that the formation fails in relation what is being a health*

care professional; we do not have the subject Public Health. So, we do not study the theme "Public Health";

Testimony 4: *"I think the student should do an internship in each area to go through this experience".*

The aforementioned curricular aspects lead us to believe that the most reported problem is actually the lack of practical experience in contact with real patients. Internships and professional disciplines almost have no practical focus or contact with real patients, in addition to having inconsistency between what is taught and the professional reality, in the view of respondents, which is in accordance with the teaching pharmacy in developed countries, like the USA, the European Union countries and Malaysia, as reported by Scott, Friesner & Miller (2010) Hasan et al. (2013). These two studies mention four-year courses, being the fourth year devoted to the practice of APPEs (advanced pharmacy practice experiences). In addition, it was reported that the confidence of Pharmacy students on the aspects "knowledge" and "skills" on pharmacotherapy increased during the APPEs (Nykamp & Miller, 2011).

It is known that the professional experience, including clinical internships, is a once in a lifetime opportunity, based on real cases, which promotes the integration of knowledge with evidence-based understanding of the approach based both in prescribing and use of medicines, as well as in optimized to provide a safer pharmacotherapy, assisting in decision-making and allowing the improvement of practice capacity developed in the classroom, which are safer and more controlled environments (Hassan et al., 2013).

On the other hand, it is not sufficient to gain experience of any kind, because it can lead one to the mistake of thinking that is ready for the professional market, but there is a large disconnection between what one accumulates of experience (or what one learns at university) and the real life practice of Pharmacy. Students can do their training in several areas and they are misaligned with their professional goals. For example, in a study by Maynard, Wagner, Winkler & Montuoro (2011) in the Midwestern University Institutional Review Board, Chicago (USA), involving Pharmacy students in their final year, students spent 69% of the time practicing dispensing drugs and only 10% in the practice of pharmaceutical care and they want just to work in the area they had less experience, as cited Maynard et al. (2011).

All the weaknesses in the dimension "curriculum" converge to the need for curriculum reformulation in the course, but this kind of initiative in universities usually emanates from the academic boards with the participation of students. However, the data collected from the focus groups are not sufficient to promote curriculum reform, because it is necessary to listen to other actors in the formation process, especially teachers and graduates in order to better embrace the reform, aiming to prepare students with the profile as closest as possible of the labor market.

3.3. Teaching

Among the complaints of respondents, it was remarkable the inadequacy of teachers' profile who always give greater focus on research. Let us take, for example, what spoke some respondents about this fact:

Testimony 2: *"...because here at the university happens this situation: all the instructors teach and research at the same time; there is no profile distinction, but we know that there is a difference.... There are teachers who have no skill for teaching...So, we attend many disciplines with teachers that we know they have*

> *much knowledge, but they do not have the ability to disseminate this knowledge.... I think it ends up reflecting in a poor formation of students".*

Testimony 2: "*I think our course is more geared for those who want to follow an academic career. It is not directed to the labor market....It has a lack of practice approach".*

After this statement, there was agreement of all members of the focus group, indicating that the feeling was shared by everyone. Possibly, the formation of university teachers, without considering didactic and pedagogical aspects, may be responsible for this weakness. In the view of Rozendo, Casagrande, Schneider & Pardini. (1999):

> The teacher is characterized as an expert in your field of knowledge. This is the criteria for their selection and employment. However, not necessarily this teacher dominates educational and pedagogical fields nor have a broader point of view, more philosophical, nor even else a more immediate, technological point of view. The assumption is that "if I know well a given field of study, I can be a teacher", as we often hear at the University; underlying this statement is the assumption that, for higher education, the most important is the domain of knowledge related to your area of expertise: the didactic formation would not be so necessary, because college students - as adults, because they undergo rigorous selection, and are motivated to become a professional would be "a priori", prepared to learn by themselves (p. 15).

In fact, all extremism is negative for the transmission of knowledge. Otherwise, this harms the teaching efficiency. Teachers with extreme scientific ability tend to teach their classes in a high level of abstraction and complexity, supposing that students are assimilating knowledge, without worrying about the actual understanding or providing opportunities for students to participate in the construction of knowledge. According to Villani & Pacca (1997):

> …we cannot fail to recognize that the great familiarity with the scientific knowledge leads sometimes to attitudes that undermine the teaching efficiency: (a) underestimate the difficulties faced by the students who do not have the same conceptual framework and teachers' culture. For them, the abstract and general relations of science appear almost obvious, but such evidence derives from the set of information, values and methods that support the use of these relations; (b) be unable to leave during the teaching process, the accuracy of formulations and adopt temporary and partial concepts, closer to the knowledge of students (p. 4).

Respondents mentioned the lack of interest of teachers in improving the course, which may be the result of aspects already discussed elsewhere. The overconfidence with regard to teaching skill can also generate the teacher to repeat the same classes semester after semester, from one year to another etc., creating an effect like "read only memory", which tends to mesmerize the curriculum.

Another cause of blaming was the inadequate approach used by some teachers to deal with the syllabus, not emphasizing practical applications. In a way, depending on the teachers' workload and their teaching ability, there is a tendency for the teacher to adopt a one-way passage of content merely with lectures, imposing their "absolute truths", as mentioned by Correia, Lima & Araújo (2001).

> …in a macro view, schools have not demonstrated concern in preparing their students for the acquisition of concepts, but rather to "train them to learn", excluding the meaning and context of the models used and failing to consider (in much of the cases) their concepts in daily experiences. Most teachers

> believe they need only propose a speech on a given content, conveying scientific concepts exclusively in lectures as "absolute truths", perpetuating the view of knowledge as “copy” written on a tabula rasa. Thus, it creates a big problem for learning, since the goal is only the transmission of content that you want to teach, discarding any real preparation on the construction of knowledge by students (p. 556).

Some themes were recurrent, such as the over-theoretical approach cited even when the students were asked about the curriculum. They were incisive and strongly criticized the teaching method, as reported below:

Testimony 1: *“I think this teaching method never works...”.*

Testimony 2: *“I think it also does not prepare, what we learn a lot in theory, in practice we do not see anything... It really does not prepare for what we will face out there”.*

Testimony 3: *“We are very restricted. It is that theoretical stuff... The patient is our focus, but we get all the time just in theory and cannot connect the learning.... It was studied to get a degree, but not addressed to the practice....”*

It is clear from the interviewees' statements that there is strong dissatisfaction with the teaching method with excess of theoretical lectures and as if the ultimate goal was to be succeed on tests. The solid learning and completion in terms of theoretical contents are questionable, in the view of respondents. This way of teaching, in fact, opposites to the learning that values the role of the student as an individual who has the ability to interact in the educational environment and needs "to be helped to discover for themselves the knowledge that they must learn and use the tools that best suited to the character and personality of each one "(Biggs, 1996). Contrasting this approach, the teacher can take the role of mentor during learning when strategies like cooperative learning, case studies or problem-based learning are used (Canaleta, Vernet, Vicent & Monteroet, 2014).

The practice to which students refer lies in the lack of contact with real patients. In this context, Branch (2014) reports a vision of the United Kingdom Pharmaceutical Council (GPhC) which states that the undergraduate curriculum should include practical experience dealing with patients, taking place gradually since the beginning of the course and increasing year after year, in a certain way that students could finish their course effectively prepared for the practice to obtain their degree.

3.3. Practice

One of the most cited items in the statements of the students was the lack of professional experience during the course. Students complained about deficiencies very simple to be overwhelmed, such as: doubts about their roles and technical responsibilities, how to handle with administrative tasks (or bureaucracy) inside a pharmacy, how to make appropriate notes in the recipe, how to write the proper records in prescription drugs inter alia. Someone said they would like to acquire targeted professional responsibilities.

To corroborate what was said above, we transcribe below some students’ testimonials pieces:

Testimony 1: *"It should show how is the daily life inside a pharmacy, how it works, what are the pharmacist's duties, why do not I know these bureaucratic tasks, what has to be done, how to do, how*

about antibiotic that only must be dispensed with the prescription? What do I do with this prescription, and so on…"

Testimony 2: "I myself if I get today into a pharmacy I will not know absolutely anything, I do not know how is its operation, I do not know nothing, nothing...

Testimonial 3: "*So, we learn that exists yellow prescription, blue prescription, but, in practice, how is it? In practice how is it filled? What kind of medicines are class 'A', class 'B' or class 'C', and which is the respective type of prescription? So ... we do not know how it works, how to implement, do you understand?"*

In the same context, when students were argued about how to guide patients to use medicines, they cited emphatically "*not knowing how to do so*" and such claims reverted to the lack of preparation because they did not receive the concepts/subjects during the course, as can be inferred from the quotations below:

Testimony 1: *"...To provide advice on the correct use of drugs ... in fact ... the college does not prepare!"*

Testimony 2: "*The course does not prepare us and we realize when we go to internship... I realized that I knew nothing, and there? What did I learn? My internship occurred in a poor neighborhood... The patients often asked some questions and I did not know even how to guide them to use the medication properly*".

Testimony 3: "*...I also think that disciplines such as Semiology need to be employed because a patient arrives at the pharmacy with various symptoms and will you give any medicine?*

Regarding to the last statement, the lack of professional discipline appointed by the participant, Semiology. Without this subject, the course is prejudiced in two ways: less opportunities to acquire skills and downgrading its curriculum, contrary to many other Pharmacy courses in Brazil and worldwide. In a way, this problem also reflected in the factor "curriculum", as discussed above.

To overcome a similar problem, Maynard et al. (2011) suggests that students are exposed to student experiments in the form of case studies in which patients suffering from multiple health problems, leaving students to identify untreated conditions and make the appropriate treatment recommendations, and to identify inadequate pharmacotherapy and develop monitoring plans for the evolution of the clinical picture of the patient.

On the other hand, Kassam & Volume-Smith (2003) reported that an appropriate way to train pharmacists to fulfill the interests of society is through the introduction of the practice of pharmaceutical attention systematically in the programs of the courses. This was made possible by extending the duration of the courses in 4 to 12 weeks, covering different target environments (e.g. community pharmacy and institutional pharmacy) and diversifying the direct care activities to the patient, in order to create opportunities for students taking responsibility in real situations.

In several parts of students' testimonies some behavioral factors were found, such as the insecurity, fear, discouragement, frustration and difficulty to face unusual facts. Of course, some of these aspects are interlinked, such as the insecurity caused by the lack of knowledge, generating fear and even affecting verbal communication. Some people have their voice impaired when are under emotional stress; the words do not come to the mouth. To corroborate this assertive, here are some pieces of speeches:

Testimony 1: "*I think everyone here has already said that feels unconfident when is going to see a patient. When I talk to a patient, I myself feel apprehensive, afraid of being rejected by the patient when he comes to buy something... So, the community pharmacy school would give us this support, understand? To make us increasingly confident about the patient…*"

Testimony 2: *"The issue 'non-verbal communication' is also important. As we will deal with the patient, our attitude, the way to talk to the patient ... It has to show self-confidence..."*

The feelings of respondents concerning their weaknesses highlighted above, are directly related to communication difficulties with other health professionals and patients. Of course, if the student or professional is prepared, with a good foundation of knowledge and skills, insecurity, fear and other concerned aspects are more easily overcame.

Baldwin, McCroskey & Knutson (1979) found that more than 30% of pharmaceutical dodge communication whenever possible. The explanation for this problem was later presented by McCroskey (1984), which defined this phenomenon as the individual level of fear (in real communication) or anxiety (in the case of potential communication) to be in contact with another person.

In some passages during the focus groups sessions, students reported to have difficulties to communicate with doctors, better characterized as pharmacists have less knowledge than the doctor, as may be inferred from the following statement piece*: (...) I think the pharmacist does not know how to contact the doctor. How to argue with him possible interactions? How do I talk to him if I notice that something is wrong?* Note that the student referred to the need for a deeper interaction with the doctor, but confesses to have no idea how to do it.

This psychological obstacle of Pharmacy students at the contact with doctors and other health professionals is reported by Hasan et al. (2013) in a study involving community pharmacists. These authors call this feeling as an uncomfortable situation arising from a psychosocial barrier that can be the result of an unfavorable hierarchical positioning to pharmacists front of general practitioners. In the same study it was found that medical team showed high acceptance rate of interventions made by students of pharmacy participants of the study. This shows that the barriers may exist in the minds of pharmacists for not being or feeling prepared, but that it can be eliminated as they gain experience and confidence.

Equally for the patients, communication barriers were also reported, as shown by the clippings of reports of other students involved in the study:

Testimony 1: *"How should I behave in front of the patient? Which techniques/ways must be used? How should I talk?*"

Testimony 2: *"I will not run as a robot and no patient is equal to another one. So I should have to know how to express myself before him*"

In this context, Van Hulten, Blom, Mattheusens, Wolters & Bouvyet al. (2011) state that if communication barriers between the pharmacist and the patient exist, there is a negative influence on the results of the treatment due to non-adherence and patient's resistance to participate in decisions about their therapy.

Previously featured statements are in disagreement with the skills demanded in Pharmacy courses, which require effective communication both with patients and with other health professionals, as mentioned by Schwartzman, Chung, Sakharkar & Law (2013) which give increased importance of communication as the focus of the courses

in patient-centered care as well as in interpersonal education and practice. This is a very positive way of influence, supporting patients, especially in cases of chronic conditions.

Hanya, Yonei, Kurono & Kamei (2013) report changes occurred in 2006 in Japanese undergraduate in Pharmacy courses - an increase in the duration from 4 for 6 years, after which students performed a OSCE (objective structured clinical examination) to assess whether they had acquired enough clinical expertise to join a clinical training for 5 months. They also emphasize the importance of using simulated patient technique to assist pharmacy students learn how to communicate with patients. Barrows (1993) introduced a simulation mode for the training of doctors, well-known as role-playing, currently used in other areas, like pharmacy, which make students able to reflect on their performance in communication with patients.

The extension of pharmaceutical training in clinical pharmacy was also recommended by Ried, Brazeau, Kimberlin, Meldrum & McKenzie (2002) as an approach to improve pharmacists' performance in patient-centered care activities, especially concerned with interaction, communication and skills acquired after 9 weeks of work in hospital clinical pharmacy.

The claims of the students are consistent with the recommendations of the World Health Organization (WHO), which specifies, among the skills and abilities that, to support the performance of its function, the pharmacist must be a communicator, knowledgeable and reliable, to establish a good relationship with other professionals and the public in general (WHO, 1997).

The interrelation between the views of participants and the consistency with the results of several studies leads us to believe that students really need to improve your skills. Information on the vision of Pharmacy final year students about their education may be useful to explain the inconsistencies observed between the pharmaceutical education and the realities of professional practice. Since the study involved only students of final year of pharmacy course, it can be concluded that almost all chances of acquiring the necessary skills to face the labor market have been exhausted. The solution of the problem at the source requires a curriculum reform.

Conclusion

The results achieved in this study revealed the main causes of the lack of skills needed for pharmaceutical practice of pharmacy students, as follows:

Insufficient infrastructure, the nonexistence of a school Pharmacy and underuse of the University Hospital, were the main causes given by Pharmacy students who participated in the focus groups for the deficiency in professional education thereof in terms of practical knowledge and skills.

On the other hand, the excess of theoretical concepts in the course and the didactic and pedagogical shortcomings of teachers also contribute to overshadow the practical side of the course of Pharmacy study object.

Despite the importance of controlling the skills on the definition of professional competence, formation of higher education teachers, especially outside majors undergraduate courses, inappropriate teaching method, lack of focus on student learning, show that teaching is little systematic, far from the steps and strategies recommended and therefore highly likely to result in poor learning.

The need for curricular reformulation towards the improvement of practical content in professional subjects also providing internships in several areas, complemented with the development and evaluation of clinical skills centered on the contact with real patients, preparing the students to obtain or interpret data, solve problems, acquire communication skills, make decisions and deal with unpredictable

behavior of the patients, are elements necessary for effective patient care and essential for pharmacists and other health professionals. In other words, this development only occurs with the assimilation of knowledge, the integration of skills and the adoption of relevant attitudes to provide a high professional performance.

The results of this study reinforce that, under the view of participants, practical learning during undergraduate course, comprising situational and workplace experiential factors, is a key prerequisite to acquire skills to deal with patients and to establish an effective relationship with other health professionals, and all these factors contribute to deliver improved pharmaceutical care.

LIMITATIONS AND PRACTICE IMPLICATIONS

Focus group research, as with all research methods there are limitations. Some can be overcome by careful planning and moderating, but others are unavoidable and peculiar to this approach. The researcher, or moderator, for example, has less control over the data produced (Morgan 1988) than in either quantitative studies or one-to-one interviewing. The moderator has to allow participants to talk to each other, ask questions and express doubts and opinions, while having very little control over the interaction other than generally keeping participants focused on the topic. By its nature focus group research is open ended and cannot be entirely predetermined.

It should not be assumed that the individuals in a focus group are expressing their own definitive individual view. They are speaking in a specific context, within a specific culture, and so sometimes it may be difficult for the researcher to clearly identify an individual message. This too is a potential limitation of focus groups.

Furthermore, while the work involved Pharmacy students, many of the findings are relevant to other higher education and healthcare settings and provides guidance useful which could be further utilized within the School and by other universities.

ACKNOWLEDGMENTS

The authors acknowledge pharmaceutical care students of Federal University of Sergipe and Brazilian National Council for Technological and Scientific Development (Capes; Coordination of Superior Level Staff Improvement) by financial support.

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CAPÍTULO II

4.2. CAPÍTULO II: Education in pharmaceutical care: a systematic review

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ABSTRACT

Objective: The aim of the work was to systematically review published studies about teaching methods in pharmaceutical care.

Methods: Literature databases searched included LILACS, PubMed, SCOPUS, EMBASE, and ERIC. We searched for studies published until January 2015 using the search terms “pharmaceutical services”, “pharmaceutical care”, “medication therapy management”, “learning”, “education” and “teaching” in different combinations.

Results: In the initial screening, the search identified 562 articles using the terms chosen; 21 articles met the inclusion criteria. Most of studies (n = 15, 71.4%) were conducted in North America and only one study was conducted in Brazil. Regarding the teaching methods or learning strategies used in analyzed studies, simulation was used in eight studies (30.0%), followed by the use of case study and problem-based learning in six articles each (28.5%).

Conclusion: Many different teaching methods were described, the most common of which was simulation, followed by clinical cases and problem-based learning. The most of studies showed positive outcomes with the educational intervention.

Keywords: Teaching, Pharmaceutical care, Active learning

INTRODUCTION

In recent decades, studies have demonstrated that pharmacists have an important role to play in medication therapy management, whereby they can greatly enhance overall patient health outcomes (Buurma et al., 2004; Dyck et al., 2005; Vinks et al., 2006; Lyra Jr. et al., 2007; Balisa-Rocha et al., 2012). In response to these needs, the pharmacy profession experienced a fundamental change in its philosophy of practice. The change in orientation is synthesized by the term "pharmaceutical care", defined by Hepler and Strand as "the responsible provision of drug therapy for the purpose of achieving defined outcomes that improve a patient's quality of life" (Hepler and Strand, 1990). Pharmaceutical care entails more clinical pharmacy practice, wherein pharmacists focus less on the distribution of drugs and more on patient care (Schneider and Sill, 1995; Li, 2003).

To move in the direction of a more patient-focused practice, pharmacists must first possess competencies that include extensive pharmacotherapy knowledge, written and verbal communication skills, greater problem-solving capabilities, decision-making skills, motivation, and the self-confidence necessary to provide pharmaceutical care (Fisher, 1994; Culbertson, 2008). Furthermore, pharmacists must possess clinical knowledge of medication and disease states so as effectively monitor a patient's drug therapy, and to develop relationships with patients that can facilitate discussions about drug-related problems, disease, and other relevant information (Schneider and Sill, 1995; Kassam, 2006a). In response to these changes in the pharmacy profession, a reorientation in pharmaceutical education became necessary for faculties and in postgraduate learning (Kassam, 2006a).

In pharmaceutical care education is important for students to practice and develop proficiency in the skills, knowledge, and attitudes relevant to achieving the

desired performance (Zaremski et al., 2005; Kassam, 2006a; Kassam et al., 2008). Consequently, educational strategies are being developed and rigorously evaluated to facilitate the learning outcomes needed to practice pharmaceutical care (Fisher, 1994; Popa et al., 2002; Sefton, 2004). In this perspective, new teaching methods and/or learning strategies have been incorporated into pharmacy curricula, mainly with the aim of changing the current model of learning/teaching. These methods require a learner-focused approach—that is, an approach that seeks to value the student as an active subject in the teaching process, who is co-responsible for the construction of knowledge in different learning scenario (Venturelli, 2003; Silva and Delizoicov, 2008). Problem-based learning, role-play, the use of clinical cases, and simulated patients are examples of these methods.

In this sense, the purpose of this systematic review was to describe the type of methodologies used in the teaching of pharmaceutical care.

METHODS

The present review was written in accordance with some of the criteria of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) declaration of methodology (Moher et al., 2009).

Eligibility Criteria

Were considered eligible studies that addressed teaching methods used in pharmaceutical care or medication therapy management course. The outcomes of interest were the types of methodology used and the outcomes achieved.

Information sources

The databases EMBASE, ERIC (Education Resources Information Center), LILACS, PubMed and SCOPUS, were reviewed for original articles published until

January 2015. The descriptors used were “pharmaceutical services”, “pharmaceutical care”, “medication therapy management”, “learning”, “education”, and “teaching” in different combinations.

Search Strategy

A preliminary search was conducted, wherein we examined the descriptors in the titles or abstracts of papers we found. However, a preliminary reading of random abstracts identified many studies that were not related to the theme, which justified a restriction in search terms. Thus, articles were selected in which the descriptors "learning", "education" and "teaching" occurred in the title of the article and the other descriptors in either the title and/or abstract, which increased the likelihood of the articles being relevant. The following is an example of the strategy that we used to search a PubMed databases: (learning[ti] or education[ti] or teaching[ti]) and ("pharmaceutical care"[tiab] or “pharmaceutical services”[tiab] or “medication therapy management”[tiab]). In addition, a manual search of relevant references in all included studies was performed.

Study selection and data collection process

Two reviewers independently have made a manual sorting through titles, abstracts, and full text and selected the articles for inclusion in this review. The degree of concordance between the two reviewers was evaluated using the kappa statistic (k). The kappa-measured agreement was based on the specifications of the specialized literature: $k < 0.10$, no agreement; $k < 0.40$, weak agreement; $k = 0.40–0.75$, good agreement; and $k > 0.75$, excellent agreement (Hosmer and Lameshow, 1989). In the end, the disagreements were resolved by consensus.

Articles repeatedly indexed in two or more databases were taken into consideration only once. Reviews, meta-analyses, and editorials were excluded. Those

that were not written in English, Spanish, or Portuguese were also excluded. If the abstract or the full text were not available, attempts to contact the authors to obtain the full text were made.

Data items

The articles satisfying the inclusion criteria for data extraction were carefully examined regarding the following variables: study location (setting/country); formation degree; sample size (number of students or pharmacists); school year; educational intervention; method used to participant assessment in course and outcomes variable. Furthermore, was analyzed whether articles conceptualized pharmaceutical care; described the responsibilities of pharmacist in the patient care process and described the limitations or biases of the study.

RESULTS

The Figure 1 illustrates the progressive selection and the number of articles in each stage. The initial screening using the keywords identified 562 titles, 14 of them indexed in the same database and 250 of them indexed simultaneously in two or more databases. Twenty four articles were published in another language and 21 consisted of systematic reviews. One hundred eighty-three citations were excluded on the basis of the title because they did not focus on the teaching of pharmaceutical care. Screening of the abstracts of the articles reduced the number of studies to forty-four. The full-text versions of remaining articles were obtained and carefully reviewed. Twenty-eight articles were dropped from the screening process, because the full text was unavailable or the study was not related to work of teaching or education.

An analysis of the references of the 16 selected articles was performed and 5 studies were search in reference list, totaling at the end of the selection process, 21

publications included in the systematic review (Kocla-Kimble and Batz, 1994; Wislande, 1994; Lee et al., 1998; Reutzel et al., 1999; Chambers et al., 2000; James et al., 2001; Ramam-Wilms, 2001; Bertolo et al., 2003; Lam, 2005; Kassam, 2006a; Kassam, 2006b; Ross et al., 2007; Culbertson, 2008; Kassam et al., 2008; Zolezzi and Blake, 2008; Benedict, 2010; Chiang et al., 2010; Strohfeldt and Grant, 2010; Cone et al., 2013; Limberger, 2013; Galal et al., 2014). The concordance between the two review authors was considered excellent (k = 0.9987, k = 0.9851, and k = 0.9893, respectively) in 3 steps of the selection process of articles.

In this review, most of studies (n = 15, 71.4%) were conducted in North America (Kocla-Kimble and Batz, 1994; Wislande, 1994; Lee et al., 1998; Reutzel et al., 1999; Chambers et al., 2000; Ramam-Wilms, 2001; Lam, 2005; Kassam, 2006a; Kassam, 2006b; Ross et al., 2007; Culbertson, 2008; Kassam et al., 2008; Benedict, 2010; Cone et al., 2013; Galal et al., 2014). Only one study was conducted in Brazil (Limberger, 2013). All selected studies were published after 1990. Only one study was written in Spanish and only one in Portuguese, the others were in English.

Most of the studies were directed for undergraduate students of pharmacy (n =14, 66.7%) (Fisher, 1994; Wislande, 1994; Schneider and Sill, 1995; Culbertson, 2008; Chambers et al., 2000; Ramam-Wilms, 2001; Lam, 2005; Kassam, 2006a; Kassam, 2006b; Ross et al., 2007; Kassam et al., 2008; Martínez-Sánchez, 2009; Benedict, 2010), while only 19.0% were courses of continuing education to pharmacists (n = 4) (Kocla-Kimble and Batz, 1994; Lee et al., 1998; Reutzel et al., 1999; Chiang et al., 2010) and the others (n = 3, 14.3%) were education programs for postgraduate pharmacists (Lam, 2005; Zolezzi and Blake, 2008; Strohfeldt and Grant, 2010). The educational interventions were used in the pharmaceutical care courses from the first

until fourth year of an undergraduate pharmacy degree program. Sample size in the analyzed papers varied from 15 to 574 students or pharmacists.

Table 1. Characteristics of the study sample regarding: setting/country, formation degree, sample size and school year.

Reference	Country/Setting	Formation Degree	Sample Size (Students or pharmacists)	School Year
Kocla-Kimble & Batz, 1994	USA / University of California	Continuing education to pharmacists	15 pharmacists	Not applicable
Winslade, 1994	Canada / University of Toronto	Undergraduate students of pharmacy	160 students	Final year of the baccalaureate program
Lee et al., 1998	USA / University of the Pacific	Continuing education to pharmacists	34 pharmacists	Not applicable
Reutzel et al., 1999	USA /Midwestern University Chicago College of Pharmacy, Drake University college of Pharmacy & Health Sciences and American Drug Stores Pharmacy	Continuing education (CE) to pharmacists	23 pharmacist	Not applicable
Chambers et al., 2000	USA / University of Washington State	Undergraduate students of pharmacy	574 students	First-year and second-year

James et al., 2001	United Kingdom / University of Brighton	Undergraduate students of pharmacy	91 students	Not available
Ramam-Wilms, 2001	Canada / University of Toronto	Undergraduate students of pharmacy	120 students	Third and fourth professional years
Bertoldo et al., 2003	Argentina / Universidad Católica de Córdoba	Undergraduate students of pharmacy	27 students	Final year
Lam, 2005	USA / University of Washington School of Pharmacy	PharmD students	24 students	Final year of study
Kassam, 2006a	Canada / The University of British Columbia	Undergraduate students of pharmacy	122 students	Fourth year (senior year)
Kassam, 2006b	Canada / The University of British Columbia	Undergraduate students of pharmacy	122 students	Fourth year (senior year)
Ross et al., 2007	USA / University of Mississippi	Undergraduate students of pharmacy	The average number of students is 80	Third-professional year

Culbertson et al., 2008	USA / Idaho State University	Undergraduate students of pharmacy	180 students	First year through the third year
Kassam et al., 2008	Canada / The University of British Columbia	Undergraduate students of pharmacy	35 students	Fourth year (senior year)
Zolezzi and Blake, 2008	New Zealand / University of Auckland	Postgraduate to pharmacists	Not available	Not applicable
Benedict, 2010	USA / University of Pittsburgh	Undergraduate students of pharmacy	107 students to lectures	Third year
Chiang et al., 2010	Taiwan / Taiwan Association of Asthma Education and Taipei Medical University Wan Fang Hospital	Continuing education (CE) to pharmacists	105 pharmacists	Not applicable
Strohfeldt and Grant, 2010	United Kingdom / University of Reading	Masters of pharmacy degree (MPharm) students	100 students	Second year
Cone et al., 2013	USA / University of New Mexico	Undergraduate students of pharmacy	20-30 students	Second year

Limberger, 2013	Brasil / Centro Universitário Franciscano	Undergraduate students of pharmacy	Not available	Fourth year
Galal et al., 2014	USA / University of the Pacific	Undergraduate students of pharmacy	40 students	Not available

In the present study, only two studies discussed the pharmaceutical care concept (James et al., 2001; Kassam et al., 2008). Fourteen studies (66.7%) reported several responsibilities of the pharmacist in the process of patient care. Among them, the most frequently cited were: determination of patient's drug-related needs (indication, effectiveness, safety, adherence) and identifying drug therapy problems, in ten articles (Wislande, 1994; Reutzel et al., 1999; Chambers et al., 2000; Ramam-Wilms, 2001; Bertolo et al., 2003; Kassam, 2006a; Kassam, 2006b; Culbertson, 2008; Limberger, 2013; Galal et al., 2014), followed by obtaining of patient data as the reason for the encounter, demographics, medication experience, and other clinical information (Wislande, 1994; Galal et al., 2014) and development of care plans (James et al., 2001; Cone et al., 2013).

Table 2 presents the educational interventions, methods of assessment and outcomes measured by the 21 selected studies. Regarding the teaching methods or learning strategies used in analyzed studies, simulation was the most used, in eight studies (30.0%)(Kocla-Kimble and Batz, 1994; Lee et al., 1998; Reutzel et al., 1999; Chambers et al., 2000; James et al., 2001; Benedict, 2010; Cone et al., 2013; Galal et al., 2014), followed by the use of problem-based learning (Wislande, 1994; Ramam-Wilms, 2001; Ross et al., 2007; Culbertson, 2008; Benedict, 2010; Strohfeldt and Grant, 2010) and case study (Ramam-Wilms, 2001; Lam, 2005; Culbertson, 2008; Zolezzi and Blake, 2008; Chiang et al., 2010; Limberger, 2013) in six articles each (28.5%).

The evaluation methods most utilized to assess the students or pharmacists were evaluation of performance in the course or practical assessment, in eight studies (Lee et al., 1998; Reutzel et al., 1999; Chambers et al., 2000; Kassam, 2006b; Ross et al., 2007; Culbertson, 2008; Cone et al., 2013; Limberger, 2013).Other methods worth mentioning were written examinations (Wislande, 1994; Lee et al., 1998; Reutzel et al., 1999; Ross

et al., 2007) and questionnaires (James et al., 2001; Kassam et al., 2008; Chiang et al., 2010; Galal et al., 2014) in four studies each.

Regarding the outcomes of studies, these were divided in evaluation of participant knowledge, participant performance and participant satisfaction with the course. Eleven studies showed outcomes in the knowledge (52.4%) (Kocla-Kimble and Batz, 1994; Wislande, 1994; Reutzel et al., 1999; Ramam-Wilms, 2001; Bertolo et al., 2003; Zolezzi and Blake, 2008; Benedict, 2010; Chiang et al., 2010; Strohfeldt and Grant, 2010; Limberger, 2013; Galal et al., 2014), and all these demonstrated positive outcomes in the improvement of knowledge of the participants.

Performance assessment of participants was conducted in 16 articles (76.2%) (Kocla-Kimble and Batz, 1994; Lee et al., 1998; Reutzel et al., 1999; Chambers et al., 2000; James et al., 2001; Bertolo et al., 2003; Lam, 2005; Kassam, 2006a; Ross et al., 2007; Culbertson, 2008; Kassam et al., 2008; Zolezzi and Blake, 2008; Chiang et al., 2010; Cone et al., 2013; Limberger, 2013; Galal et al., 2014). In these studies, only 1 presented negative outcomes in the performance of the participants (Kassam, 2006a), and 1 was neutral, in other words student performance did not decline, but outcomes did not improve (Ross et al., 2007). The others showed positive outcomes.

Ten studies also reported the outcomes in terms of participant satisfaction with the course (Wislande, 1994; Chambers et al., 2000; Reutzel et al., 1999; Ramam-Wilms, 2001; Kassam, 2006b; Ross et al., 2007; Zolezzi and Blake, 2008; Benedict, 2010; Strohfeldt and Grant, 2010, Cone et al., 2013). The most of studies reported that educational interventions had been well received by students. Details of achieved outcomes can be seen in Table 2.

Finally, it is also worth highlighting that nine articles reported the limitations of the completed study (Wislande, 1994; Lee et al., 1998; Ramam-Wilms, 2001; Kassam,

2006a; Kassam, 2006b; Kassam et al., 2008; Zolezzi and Blake, 2008; Chiang et al., 2010, Galal et al., 2014).

Table 2. Summary of educational intervention, method used to student evaluation in course and outcomes variables of included studies.

Reference	Educational Intervention	Method used to participant evaluation in course	Outcomes		
			Participant Knowledge	**Participant Performa**	**Participant Satisfaction**
Kocla-Kimble & Batz, 1994	Hands-on practice, simulation: role play, and discussion in class	Peer review and feedback	Positive: Self assessment showed increase of levels of knowledge in diabetes care	Positive: Self assessment showed increased levels of confidence in diabetes care, and increased empathy and interest in working with patients with diabetes	NA
Winslade, 1994	Problem-based learning	Written examinations with clinical cases	Positive: Self assessment showed increase of levels of knowledge	NA	Positive: The majority of students believed the course to be good or very good. Faculty evaluation: the course was enjoyable and student participation and knowledge met or surpassed their expectations
Lee et al., 1998	Simulation: Role-play, use of interactive videos	Checklist to assess the counseling technique, written examination to evaluate the knowledge	NA	Positive: Self-assessment before and after the training program showed significant improved of	NA

				pharmacist's confidence in patients counseling	
Reutzel et al., 1999	Didactic lectures, group discussion and simulation: role-play	Self-assessment and final examination (written and practical components)	Positive: Self-assessment with focus group showed that the educational series improve cognitive abilities, refresh old knowledge and provide new knowledge	Positive Self-assessment with focus group showed effect on pharmacists' attitudes, practice behavior and increase of confidence levels	Positive: The educational series was a success in terms improving job satisfaction and morale. The pharmacists liked the realistic cases and the small group format
Chambers et al., 2000	Peer teaching; Simulation: role play; service learning	Checklist of performance	NA	Positive: Scores on skills checklists indicated that students learned technical skills	Positive: very useful teaching method for reinforcing technical skills and providing better instruction
James et al., 2001	Simulation: Simulated-patient	Questionnaire designed for students' self-assessment	NA	Positive: Self-assessment before and after delivery of the teaching program showed significant increases in the confidence and a statistically significant decrease in perceived level of difficulty when conducting a consultation	NA

Ramam-Wilms, 2001	Incorporation of case study, discussion, use of real patients and use of a web site in a problem based learning course	Discussions with timely written feedback; Final oral examinations; Case study seminars with verbal and written assessment, self and peer assessment	Positive: Gradual development of the students' knowledge required to provide pharmaceutical care	NA	Positive: all strategies have been well received by students. Most students consider the seminars useful in their practice, and they felt comfortable with their knowledge and skills. The students' evaluation of the website indicated that it is a useful tool to learning and easy to use
Bertoldo et al., 2003	Seminars and use of real patients	Seminars and discussion of case	Positive: students were able to integrate knowledge to identify, resolve, and prevent drug-related problems	Positive: Students employ communication skills in relationships patient-pharmacist and pharmacist-physician	NA
Lam, 2005	Service learning and case study	Formal oral presentations, written case study reports, formal mid-clerkship evaluation and a final evaluation	NA	Positive: The students were successful in improving the medication therapy of senior adults through their participation in direct care provision at the medical clinic and community site	NA
Kassam, 2006a	Service learning (advanced pharmacy practice experiences -	Reviewing portfolios: the portfolios were meant to facilitate	NA	Negative: Analysis of student portfolios suggested that the	NA

	APPE)	learning through reflection and utilized a uniform and systematic process for documenting in pharmaceutical care		learning environment did not provide students with adequate opportunities to develop pharmaceutical care competencies	
Kassam, 2006b	Service learning (Clerkship in community pharmacy)	Performance in clerkship	NA	NA	Positive: the most students expressed that their site "definitely" provided them with the opportunity to engage in pharmaceutical care activities. Students "strongly agreed" that their preceptor encouraged them to use resource materials and to learn on their own, and that their preceptor was readily available to answer their queries
Ross et al., 2007	Problem-based learning	Assessments of student group performance, a content-based written examination, and examination to test problem-solving skills based upon the presentation of a clinical	NA	Neutral: Overall student performance did not decline, but outcomes definitely did not improve	Positive: The accreditation body, faculty members, students and graduates observed that successful implementation occurred, and recommended an

		care scenario			ongoing internal review process to identify any needed curricular refinements
Culbertson et al., 2008	Problem-based learning and case study	Case study performances evaluated by 4 different clinical faculty members, using a standardized student evaluation instrument	NA	Positive: It was useful in identifying students with poor advanced pharmacy practice experiences (APPE) performance	NA
Kassam et al., 2008	Traditional APPE (two 4-week in two different pharmacies) X APPE intervention (one-day of education workshop; a five-day student orientation at the pharmacy site; and 8-week experience in the same pharmacy)	Questionnaire	NA	Positive: Students reported statistically significant benefits in terms of the number of comprehensive consultations, skills improvements and attitudes favoring pharmaceutical care principles	NA
Zolezzi et al, 2008	Web-based course with case study	NA	Positive: The students' knowledge of basic mental health concepts and therapeutics were high. Three-quarters of respondents indicated that the course deepened their understanding and	Positive: Self-evaluation of participants' comfort levels with providing pharmaceutical care increased moderately	Positive: Most of students responded that they would like more teaching in this format

			enhanced their mental health practice		
Benedict, 2010	Simulation: virtual patient, discussion boards, lectures and problem-based learning	Written report using subjective and objective patient data and care plan (SOAP)	Positive: 90% of the class improved their SOAP notes. Enhances learning and skills in treating sepsis and septic shock	NA	Positive: The teaching approach, combining active- and passive-learning strategies, was well received by students
Chiang et al., 2010	Lecture, case study and hands-on practice	Questionnaires pre-intervention and post-intervention	Positive: The continuing education program significantly improved pharmacists' knowledge of asthma care	Positive: The continuing education program significantly improved pharmacists' attitudes of asthma care.	NA
Strohfeldt and Grant, 2010	Problem-based learning	Feedback from the instructor and a written case study-based examination at the end of the course	Positive: Students' knowledge and skills needed to design a care plan was learned rapidly and the outcomes were usually good	NA	Neutral: The students enjoyed the new learning experience, but made negative comments concerning the group allocations and the amount of material taught within the course
Cone et al., 2013	Simulation: role-play, simulated patient; hands-on practice, collaborative activities that utilize digital tools and service learning	***Objective Structured Clinical Examination*** (***OSCE***)	NA	Positive: analysis of grades showed improvement of performance of students after implementation of course	Positive: Student satisfaction increased significantly with the revised curricula. Curriculum Committee feedback on course content and teaching

					techniques also improved significantly
Limberger, 2013	Case study and use of web (blog)	Summative: written test examination, participation in class, oral and written reports, web discussion Formative: assessment and feedback of student performance in class	Positive: A better understanding of the subject, higher retention of knowledge about identification of drug related problem	Positive: Students felt more insurance and with high motivation	NA
Galal et al., 2014	Traditional lectures, team learning, reading assignments, use of audience response systems, simulation and experiential learning	Standardized student evaluation questionnaire. Student's self-reflections of the course.	Positive: Knowledge increased from 12% at the beginning of the course to 81% ($p = 0.01$) at the completion of the classroom and outreach components	Positive: In response to a Likert scale assessment item regarding their confidence in providing plan assistance to patients, the percentage of students expressing that they somewhat or strongly agreed increased from 3% to 100%	NA

Abbreviations: APPE: Advanced Pharmacy Practice Experiences; OSCE: ***Objective Structured Clinical Examination***; SOAP: Subjective and objective patient data and care plan.

DISCUSSION

Loss of function, social power, and status in Pharmacy profession has been result in a gradual shift in focus away from the technical roles of pure procurement, supply, and distribution of medications, toward disease and patient-oriented approaches to pharmaceutical decision-making and more clinically oriented roles (Edmunds and Calnan, 2001; Bissell and Morgall-Traulsen, 2005). In the broadest sense, in respond to these professional needs (Breimer, 2001; Shah et al., 2010), pharmaceutical education in developed countries, such as the United Kingdom, the United States, Australia, Canada, and New Zealand, has evolved over time. Pharmacy education has undergone major change over the past decade with the approval of new standards and guidelines designed to assist pharmacy education institutions develop and maintain academically strong, effective programs that are responsive to changing health care needs.

In Brazil was published the National Guidelines for Undergraduate Education in Pharmacy (2002) which have included as key aspects in pharmacy education as: evaluation of knowledge/skills application to patient care; fostering of critical thinking/problem-solving skills; skills mastery, communication ability, among others (CNE, 2002). Thus, the focus of pharmaceutical education has shifted from the basic sciences to include clinical and health sciences, including pharmaceutical care (Hassali et al., 2011; Babar et al., 2013).

In this review, all studies were published after 1990, which is consistent with the period of extensive discussions about the definition of the mission, role, and functions of the pharmacist in pharmaceutical care (Hepler and Strand, 1990; Hepler and Graiger-Rousseaux, 1995; Faus-Dáder and Martínez Martínez, 1999; Cipolle et al., 2000). Most of studies were performed in the United States, thereby reflecting the historical process of the development of American Pharmacy; since it was there that the concept of the practice of pharmaceutical care was elaborated and systematized.

A bibliometric review of pharmaceutical education literature, performed by Babar et al., showed few studies from low- to middle-income countries (Babar et al., 2013). As a result, members of the International Pharmaceutical Federation (FIP) Pharmacy Education Taskforce, whose objective is to develop pharmaceutical education globally, recently affirmed that a strategy should be used that involves determining local needs, identifying the services required to meet those needs, and articulating the competencies to be achieved by all practitioners for the development of a comprehensive education (Anderson et al., 2008; Anderson et al., 2009a; Anderson et al., 2009b; Whitmarsh et al., 2010).

The most of studies did not define the concept of pharmaceutical care. The literature suggests that there is a need to conceptually define the practice in order to distinguish the clinical services offered by pharmacists. According to Hepler and Strand (1990), pharmaceutical care is based specifically on the ability of the pharmacist to assume new responsibilities related to patient care. The three major steps in the patient care process are the assessment of the patient, his/her medical problems, and any drug therapy problems that have occurred; development of a care plan; and conducting a follow-up evaluation (Cipolle et al., 2004).

In the most of studies in this review was a used learner-centered method as educational intervention. According to learning theories, the active methods fall into in cognitive or humanistic theories. These are, therefore, methods that value individual differences and allows for a more effective assessment of the actions of the student. In addition, it value the education contextualized, ie teaching in a close in which knowledge is used, increasing the understanding, retention and learning in adults (Piaget, 1976). In recent years, several active learning methodologies have been based on constructivist and humanist theory and incorporated in health education in order to bridge the gap between theory and real patient experience (Tagawa, Imanaka, 2010 Shrivastava, Shrivastava, Ramasamy, 2013).

The learning strategy most used by reviewed studies was simulations. The most of simulation approaches described in the literature involved interaction between the pharmacist (student) and a patient (peer, instructor, standardized patient, actor or virtual patient) for the purpose of acquiring knowledge or developing a particular skill (Parkhurst, 1994; Ellington et al., 2002). In pharmacy, the role-play technique has been used primarily as a means of helping students develop skills in communication, consultation, and medication history-taking (Ellington et al., 2002; Shah et al., 2004; Rao, 2011).

Other finding was the limited number of studies using virtual patients in teaching pharmaceutical care. Several studies demonstrated the effectiveness of methods using simulations with virtual patients in the promotion of necessary competencies for pharmaceutical care (Fuhrman et al., 2001; Hussein and Kawahara, 2006; Orr, 2007). Furthermore, a systematic review published in 2012 pointed out that the use of virtual patients has the potential to be an innovative and effective educational tool in pharmaceutical education, particularly for optimizing the teaching of pharmaceutical care (Jabbur-Lopes et al., 2012).

Problem based learning (PBL) also was widely used. PBL is a well-known instructional method that has gained popularity in health professional education during the past few decades (Culbertson et al., 1997; Catney and Currie, 1999). In pharmacy, a literature review realized by Cisneros et al. (2002) revealed that there were a substantial number of articles that discussed the implementation of PBL methods in the pharmacy curriculum. Self-directed learning is the central element of the PBL approach, in which small groups of five or six students work together with the support of a facilitator (Wood, 2003). Compared to traditional methods, such as lectures and discussion, PBL is an instructional method that permits a higher degree of inquiry, greater learner control, and active participation (Catney and Currie, 1999).

Evensen and Hmelo (2000) suggested that PBL students might be better problem-solvers and more able to integrate basic science into clinical problems. In this sense, Catney and Currie (1999) concluded that adopting PBL in a pharmaceutical care course would provide an appropriate context for students to begin to develop the skills needed to actively evaluate patient data, identify drug therapy problems, and apply a consistent strategy for clinical problem-solving and care planning. Despite the advantages mentioned above, there are also disadvantages connected to PBL as need of curriculum reform in pharmacy coursework, high costs and staff workload (Strohfeldt and Grant, 2010).

Despite the specific advantages of each teaching method or learning strategy, and in view of the complexity of pharmaceutical care practice, the ideal would be to utilize a range of different teaching methods. According to Gil, the teacher should make sure that the chosen teaching method is the most appropriate to the learning's goals and for this a sequence of methods can be used. For example, simulation strategies can be used before the student goes into the real environment of practice, with actual patients. In addition, using different teaching methods has the advantage of accommodating students with different learning styles. Catholico (2009) affirms that students' learning style—the characteristics and preferences of individual learners in the ways they receive or process information—may help explain, for example, why some teaching methods are more or less effective for certain groups of students.

It is important that the assessment methods should be consistent with the teaching method and with learning objectives. Assessment plays a key role in the learner-centered teaching approach and must be focused on desired learning outcomes (Harpe et al., 2008). Since the objective in teaching pharmaceutical care is not only memorization of knowledge but also development of skills and attitudes, the instructors can provide students with multiple methods of assessment and increase the number of opportunities to demonstrate application of

course material. Walczyk and Ramsey (2003) argue that, although traditional testing such as written examinations and questionnaires (which were often used in studies of this review) may form a component of assessment in learner-centered courses, assessments should also include opportunities that represent how course content will actually be used in practice.

Regarding the participants' knowledge, all the studies that reported this issue showed positive outcomes with the educational intervention. Similar results are found in literature which found that students perceived the merits of using active learning as improved application of knowledge and critical thinking (Van Amburgh et al. 2007). An important responsibility in educating student pharmacists via active learning methodologies is instilling in them a commitment to lifelong learning so that as pharmacists they will be able to maintain and expand their knowledge and skills to better serve patients, the profession, and society as a whole (Barclay et al., 2011).

Finally for the performance and satisfaction of participants, most studies presented increased of confidence and motivation levels of the students in the patient counseling; better communication skills, empathy, attitudes in the patient care and, satisfaction with course. According to Branch (2014), the students found in the educational intervention a good way increasing their confidence and prepare them for future practice. It is advisable that pharmacists have appropriate communication skills in order to better serve their patients (Hasan, 2008). Some studies evaluating health professional skills demonstrated that pharmacists have significantly increased their knowledge and skills after receiving educational interventions, as corroborated by this study (Kim, 2009; Basheti et al., 2009).

Limitations

The present study is not without limitations. First, although the search strategy used in this study was helpful in gathering information relevant to our subject, there are some limitations and bias inherent to using databases for primary source collection. Such limitations include difficulty in establishing the correlation between the descriptors and the reliability of search results, particularly regarding the specificity, selectivity, and sensitivity of the descriptors to retrieve references that are relevant to the subject. To circumvent this problem, the databases instituted the use of a standardized vocabulary of keywords in order to standardize and facilitate the search for references in the database. The problem is that the term "pharmaceutical care," is not contained as a descriptor in the vocabulary of these databases, at least according to the definition proposed by Hepler and Strand (1990). This, coupled with the misinterpretation of the meaning of the term or variations in how it is translated, tends to reduce the effectiveness of reference recovery. This problem had been detected in the work of Machuca et al. (2003) and Silva (2009), who chose to combine descriptors such as "pharmaceutical care" and "drug related problem." In addition, the use of others relevant keywords, such as ‘‘pharmacy practice" or “course” may have yielded a larger sample.

Secondly, due to lack of access in our country, the researchers did not search the IPA (International Pharmaceutical Abstracts) database, which indexes pharmacy-specific journals that are not included in any other database. Hence, some studies that would have met inclusion criteria could have been left out of the review. Furthermore, since this review used only keywords in English, important publications in other languages may have been omitted. Finally, during the analysis of the articles, it was not possible to estimate the risk of bias in each study, as advocated by PRISMA.

CONCLUSION

This paper set out to systematically review published literature in peer-reviewed journals of education in pharmaceutical care. Many different teaching methods were described in studies, notably simulation, PBL and case study. The most of studies showed positive outcomes with the educational intervention.

Practice Implications

Practice Implications

Through this review, a series of themes have emerged to address gaps in current knowledge. First, practical research should be conducted into different programs at different pharmacy schools and universities, in several countries, in an effort to more fully understand the processes involved in planning and implementing new teaching methods, as well as the variables that contribute to successes and challenges in those processes. Furthermore, this additional research should use a combination of both quantitative and qualitative research methodologies to more fully understand the effects of teaching methods on students.

Second, there is a need for more long term and even longitudinal assessments of the outcomes of pharmaceutical care courses. Often, research is conducted for a length of time that is determined by the experimenter's time and resources, not necessarily the amount of time necessary to provide a thorough investigation into the effects of teaching methods on student learning (Faus-Dáder and Martínez Martínez, 2009). Thus, studies of continuing education should follow the pharmacist into the profession to fully understand the effects of courses on actual practice.

In response to these gaps, active learning methods will be the basis for implementing a pharmaceutical care course at the College of Pharmacy of the Federal University of Sergipe in Brazil. We anticipate that the use of active methods as an educational tool will not only

facilitate the development of competencies and skills of pharmacy students in pharmaceutical care but will also facilitate the transfer of these skills to the practice setting.

ACKNOWLEDGMENTS

This study was supported by Fundação de Apoio à Pesquisa e à Inovação Tecnológica of Sergipe State (Foundation for the Support of Research and Innovation) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Coordinating Agency for the Professional Development of Tertiary Qualified Personnel).

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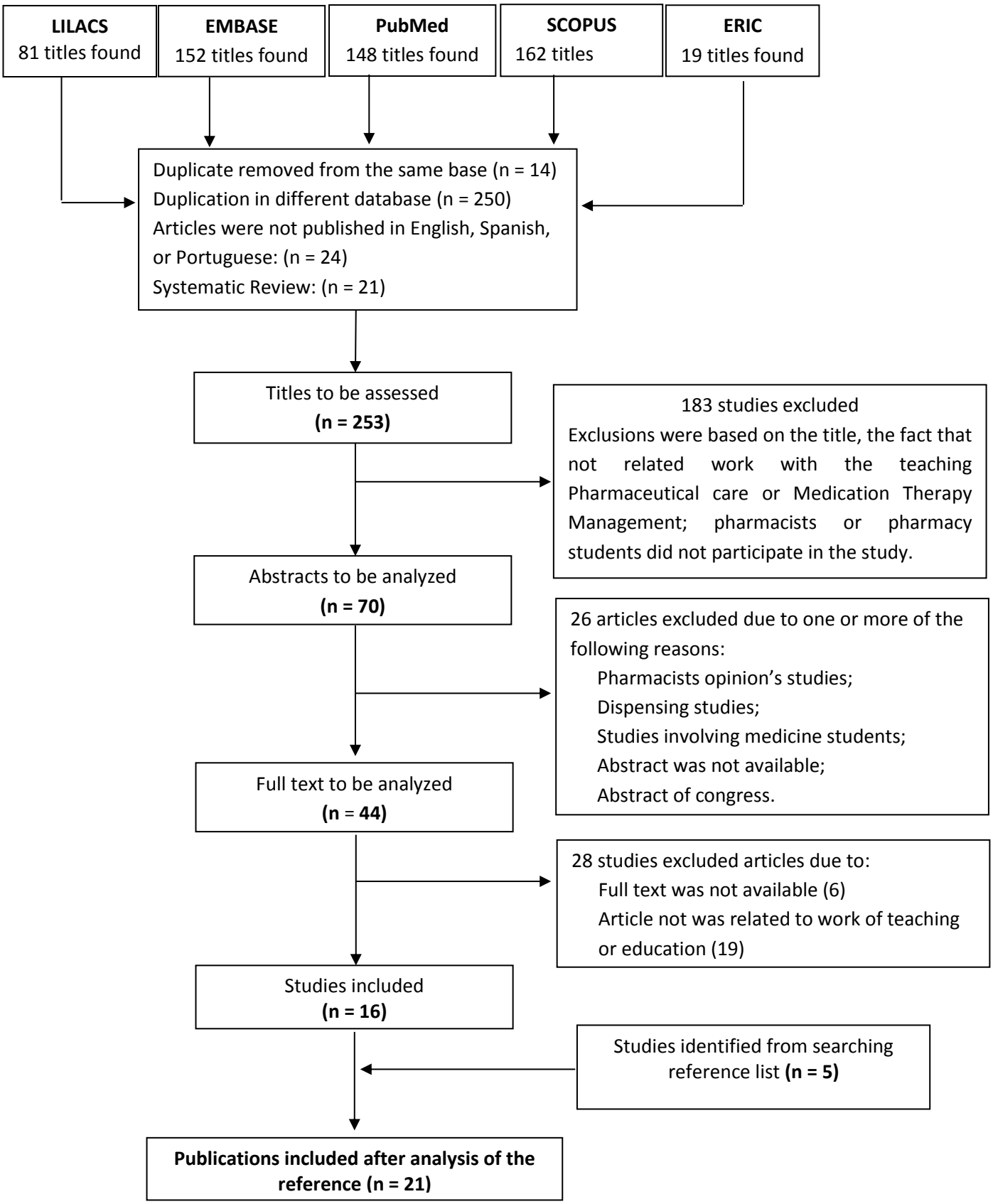

Figure 3 – Flow diagram for the review process

CAPÍTULO III

4.3. CAPÍTULO III: Developing a learner-centered pharmaceutical care course using a focus group approach

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Acknowledgments

We acknowledge the teachers of pharmaceutical care by contributions.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and or publication of this article: Brazilian National Council for Technological and Scientific Development (Capes; Coordination of Superior Level Staff Improvement).

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Abstract

The aim of this article was to obtain the opinions of a pharmacist teachers group regarding the pharmaceutical care course model most suited to Brazil. For this, five teachers of pharmaceutical care courses in public Faculty of Pharmacy in Brazil were selected to participate. Participants were asked to provide their perceptions about 3 predetermined questions regarding the content that should be taught in pharmaceutical care course, skills that should be taught in the course, and learning activities that are necessary to develop the knowledge and skills that are taught. Data were subjected to a content analysis. The focus group identified 5 categories related to the students' development of professional identity: competences to pharmaceutical care; challenges to teach; instructional design; learning assessment; and barriers to the application of the teaching method. The report of this focus group shows that new teaching methods should be implemented to ensure effective pharmaceutical care courses.

Keywords: content analysis; developing countries; focus groups; knowledge construction; teaching / learning strategies

Introduction

In recent years, given increased morbidity and mortality related to drugs, increased rates of chronic diseases, and changing needs of health systems, pharmacists have been encouraged to take a more active role in health care (Fincham, 2006; FIP, 2008; Hameen-Anttila, Saano & Vainio, 2010). Consequently, pharmacists have shifted their focus towards preparing medications for patient-centered care and have expanded the range of Pharmaceutical Services (WHO, 2006). In 1990, the pharmaceutical care philosophy was defined as "the responsible provision of drug therapy for the purpose of achieving defined outcomes that improve a patient's quality of life" (Hepler, Strand, 1990). In this context, the International Pharmaceutical Federation (FIP) has developed programs aimed at developing and implementing pharmaceutical care in the daily practice of a clinical pharmacist (FIP, 2008).

To prepare pharmacy students for this expanding role, colleges and schools of Pharmacy are incorporating components of competency into their curricula (Schellhase et al., 2013). Competence is defined as a set of observable and measurable behaviors that are reliably causally related to performance rated as good or excellent in particular work environments (Span, 2006). In health care education, competencies are often used as an alternative to outcomes assessments, because they may more accurately reflect a student's or practitioner's ability to perform in a real life setting (Maitreemit, Pongcharoensuk & Kapol, 2008; McConnell, 2001). The development of professional observable behaviors associated with competencies requires the presence of 5 components: knowledge; the ability to put knowledge into practice (the skills); attitudes; motivation; and resources (professional competence, available physical resources, favorable working environment, and so forth) (Span, 2006).

In this way, the clinical training requirements in the pharmaceutical profession have expanded, and it has become necessary to develop new competencies related to the practice of clinical subjects, which include solving problems, developing plans of care, communicating effectively, thinking critically, and making decisions (Fisher, 1994; Petkova & Dimitrova, 2003). It is important that educators of student pharmacists instill in them a commitment to lifelong learning, which will enable them to maintain and expand their knowledge and skills to better serve patients, the profession, and society as a whole (Hagemeier & Mason, 2011).

According to Salter et al., the fundamental purpose of Pharmacy Education is to provide students with the knowledge and skills to become pharmacists and to enable pharmacists to remain competent in the profession (Salter et al., 2014). Van Der Werf et al. affirm that it is essential to teach students practical pharmacotherapy and clinical issues in a controlled setting to achieve effective learning in pharmaceutical care philosophy and medication therapy management (MTM) practice (Van Der Werf, Dekens-Konter & Brouwers, 2004). Thereby, research on the teaching of pharmaceutical care has been undertaken in several countries (Chiang, et al. 2010; Kassam, Poole & Collins, 2008; Petkova & Dimitrova, 2003 Strohfeldt & Grant, 2010); however, qualitative research has been less common.

A systematic review of the literature, conducted by the authors with the purpose of analyzing published studies on the teaching of pharmaceutical care, found no studies of the use of active learning for pharmaceutical care education in Brazil that is the reason for the need of study like this. Thus, this paper describes the results of a focus group conducted to obtain the opinions of a pharmacist teachers group regarding the models of pharmaceutical care and MTM course that are most suited to Brazil. The objectives of this article was to generate ideas related to the knowledge and skills necessary for Pharmacy students to engage

in clinical practice, and the learning strategies or teaching methods that foster these competencies.

Methods

Considering that the goal of pharmaceutical care and MTM courses is to provide graduating students with effective competences in their chosen profession, and it is our responsibility as educators to prepare them to use their knowledge and skills in a professional setting, the goal of this focus group was to understand which skills and knowledge were felt by the teachers to be essential for a successful MTM practice, and the teaching strategies that could be used to effectively teach this material. Previously published focus group methodology was followed (Flick, 2009; Patton, 2002). The study was approved by the Human Research Ethics Committee of the Federal University of Sergipe.

Subjects

Five teachers of pharmaceutical care and MTM courses in public Colleges of Pharmacy in Brazil (in 4 regions of the country) were selected to participate in the focus group. The teachers were selected based on leadership positions, and all were consultants of the Brazilian Pharmaceutical Professional Council. Each invited participant signed a term of consent that described the project goals and notified them that the discussions would be recorded. The teachers were free to withdraw from the focus group at any time, and they were assured that their identity would remain confidential.

Data collection

The focus group was conducted in October 2013 in a meeting room in the School of Pharmacy in São Cristovão, Sergipe, Brazil. During the 120-min session, participants were asked to provide their perceptions about how should be a model of pharmaceutical care and MTM course by answering 3 predetermined questions:

(1) What content should be taught in pharmaceutical care and MTM course?

(2) Which skills should be taught in pharmaceutical care and MTM course?

(3) What learning activities are necessary to develop the knowledge and skills taught in pharmaceutical care and MTM course?

The focus group questions were tested with faculty members and with the focus group participants prior to implementation.

A PhD student (ARM) acted as the moderator for the focus group, and another PhD student (WMS) acted as the assistant moderator. The moderator initiated and maintained the discussion, added questions that followed the direction of the dialogue, and sought clarification as time permitted. The moderator was given the flexibility to redirect questions to allow individual participants to make comments and suggestions that were not directly related to the questions posed. It was also the role of the moderator to ensure that no person was able to dominate the conversation, as well as to ensure that all teachers were given the opportunity to state their opinions. The assistant moderator observed the session, took notes, and monitored the recording device throughout the session. An audio-visual recording of the focus group session was taken and later transcribed, but the names of the teachers were not recorded with any of the responses.

Analysis

Following the focus group discussions, the moderators met for a debriefing to share their perceptions of critical points in the discussions and to gauge their reactions to the focus

group process. The responses of the teachers were transcribed, and the data were subjected to a content analysis based on the method of Bardin (2006). To ensure the quality of the data analysis, team members independently read a sub-sample of the transcripts and met regularly to discuss the data and emerging codes, ultimately identifying and agreeing on the main themes. Coding discrepancies were limited and those that occurred were resolved through discussion.

Results

Analysis of the focus group data identified 5 categories relating to the students' development of professional identity: (1) clinical competencies; (2) challenges to teaching; (3) instructional design; (4) learning assessment; and (5) barriers to the application of the teaching method. The identified codes were organized as described below. To help convey the nature of the categories, a description of each category is provided with a corresponding table showing the subcategories and sense nuclei.

Competencies for pharmaceutical care

This category represents the competencies that, according to the teachers in this focus group, students should achieve in pharmaceutical care and MTM courses. These competencies were divided into 2 subcategories: knowledge and skills. The sense nuclei of the knowledge subcategory contained general content that represents the base of the practice of pharmaceutical care and MTM (eliciting relevant information from the patient, identification of a patient's drug-related needs, establishing goals of therapy, and practice management, among others), as well as specific content that should be presented in the course, including morbidity and mortality associated with medications, chronic diseases, the

most prevalent acute diseases, mental illness, care at different stages of life, pharmacotherapy, semiology of minor disorders, dispensing medications, drug interactions, and analysis of laboratory tests. Table 1 shows also the sense nuclei for the skills subcategory that were addressed during the discussion of pharmaceutical care courses.

Challenges to teaching

In this category, the teachers discussed the challenges involved in determining the contents and skills that will be taught as well as choosing a teaching method for the course. They discussed the need for standardization of the activities involved in the teaching of pharmacy to undergraduate students and the need to set focus on the profession. Other subcategories raised by the focus group included the adequacy of the planning structure (curricular and physical) and the teaching approach employed (Table 2).

Instructional design

This category was divided in two subcategories: characteristics of the teaching methods and the methods themselves. The results of this discussion are shown in Table 3**.**

Learning assessment

This category addresses the need for the learning evaluations to be consistent with the new teaching methods used in the pharmaceutical care and MTM course, and was divided into two subcategories: characteristics of the evaluation methods and the evaluation methods themselves (Table 3).

Barriers to the application of the teaching method

Table 4 shows the results of the discussion of barriers to the application of the teaching method, including structural barriers and barriers associated with teachers and students.

Discussion

The method chosen to know the opinion of a group of pharmaceutical teachers about which model to course most appropriate to pharmaceutical care and MTM was focus group. The focus group approach to obtaining qualitative information assumes that individuals with experience in a given area develop opinions, knowledge, and insights of substantial potential value to the researcher conducting the study (Reutzel et al., 1999). Focus groups have high internal validity (the degree to which the researchers are actually observing what they think they are observing) and are less expensive than larger surveys (Suda, Bell & Franks, 2011; Krueger, 1998a). Thus, they can be used to gather opinions outside of consensus, provide detailed information on perceptions, clarify research findings, or design and assess subsequent research (Suda, Bell & Franks, 2011; Krueger, 1998a; Krueger; 1998b; Krueger; 1998c)

In this focus group, the first point addressed by teachers was the issue of the content of the course. To define the contents of the course, the focus group compared the Pharmacy undergraduate courses with other undergraduate courses in health care, such as nursing and medicine. The main point of discussion was the need to centralize the knowledge of the course in patient care. The statements below illustrate this topic:

> "Indeed we will develop clinical knowledge and skills. Pharmaceutical care is the following: we have an instrument that is the medicine, it is not our final goal, it is our instrument. So in our care, the dimension that sets us apart from

> the doctor, from the nurse, is that we take care of patients in the medication use process.”

> "When we look at the literature, eg, the books that were developed on pharmaceutical care, they address these three content: the philosophy of the practice, process or model of this practice and the governance or management of the practice. As well as in the nursing process course."

A study conducted by Kassam and Volume-Smith (2003) confirmed these notions, and showed that pharmaceutical care required that the student have the knowledge to assume responsibility for the management of drug-related problems and to evaluate a patient’s drug therapy outcomes over time. Thus, each patient should receive counseling and a monitoring plan, and students should document the care they have provided. In addition to this general content, the focus group also addressed specific knowledge, including knowledge of specific diseases, care at different life stages, and pharmacotherapy.

Regarding the skills that should be taught in pharmaceutical care course, the following statements exemplify the opinion in the focus group:

> “If we think in terms of clinical skills, we have really practical activities as patient exams, particularly vital signs . . . know how to use the database, collect information and interpret information, to apply information, anamnesis as an important part of clinical documentation.”

> “So . . . are always those skills, I have to know how to communicate, I have to know perform a clinical interview, I have to know to document, I must know to register, I must know how to write a communication, a report, an opinion to

> another professional. I got to know elaborate some kind of educational material to the patient and I must to have skills also management of my practice."

Similar findings were reported by Cherenson et al. (2005), in which the 10 skills most important for students and practitioners in a clinical practice were evaluated. All pharmacists and pharmacy students were in agreement that patient counseling, profile review for detecting and resolving drug-related problems, communication with health care professionals, drug information skills, documentation of interventions, and monitoring of drug therapy were important. The clinical skills identified by participants in this study were also in line with those identified by Kassam and Volume-Smith (2003), who developed and implemented a community clerkship program.

It is worth mentioning that the importance of the connection between skills and knowledge was discussed in this focus group. Skills are part of the psychomotor domain and combine with knowledge, i.e. the cognitive domain, to achieve student learning (Bloom et al., 1956). According to the literature, the curriculum should be planned around student learning outcomes that link knowledge, skills, behaviors, attitudes, and values, rather than simply using content as a road map for curricular development **(Abate,** Stamatakis & Haggett**,** 2003; Kern et al., 1998). Once outcomes are set forth, teaching and learning strategies are then developed to support the achievements of the students.

During the discussion of the skills to be taught, some participants highlighted characteristics that are challenges to the teaching of pharmaceutical care. One example is the lack of uniformity in the Pharmacy curriculum in Brazil, and the lack of standardization of the egress profile. For example:

> "…I think we're at a moment where we need to decide whether or not we want to teach pharmaceutical care to undergraduates. In my view, in one discipline

> is not possible to do it. We must understand the true mission of our profession, and not produce pharmacists who have learned everything, but don't know how to do anything."

Since 1990, other studies have demonstrated that pharmacists are the health care professionals most suited to provide pharmaceutical care, and that skill development related to pharmaceutical care should be an important component of the Pharmacy undergraduate program (Foppe van Mil & Fernandez-Llimos, 2013; Ramalho de Oliveira, 2011; Silva, 2009). In other countries this concern is also perceived. The Canadian Council for Accreditation of Pharmacy Programs has charged pharmacy schools across Canada to ensure that students are adequately skilled in the principles and practices of pharmaceutical care (AFPC, 2010).

Another feature that should be noted is the teaching approach. The group's opinion about how the teacher can determine the most appropriate choice of teaching method is illustrated below:

> "And in the end, is what sets the creativity of the teacher, not worth it to use a transformer method if the teacher is authoritarian, if his profile did not combine with that method, because sometimes it is preferable to use an expositive method, understand?"

According to Abate et al., educators and faculty in the health science disciplines often do not receive specific education or training concerning instructional approaches, learning theories, or how to best facilitate student learning. Furthermore, they may not have sufficient time, given other demands, to explore and learn relevant educational theories, concepts, and the advantages/disadvantages of various instructional methods on their own (**Abate,** Stamatakis & Haggett**,** 2003). In contrast, Stewart et al. conducted a survey to identify the use

of active-learning strategies by teachers and found that 87% of the 1,179 respondents reported the use of at least one active-learning strategy in their classroom activities, with problem-based learning reported most commonly (71%) (Stewart et al., 2011).

Regarding teaching methods used in the pharmaceutical care and MTM course, the group emphasized that, independent of the method chosen, some characteristics are important for the method to effectively achieve student learning. One of these features is the approach to the patient, which can be illustrated by the following statement:

> "I think that regardless of the method chosen, how you will transmit this content has to approach of the patient, whether, for example, working with clinical case or simulate the care to the patient . . . to be not only lecture, ie only provide content. I think this is totally flawed. How to fail in the teaching of pharmaceutical care? Is your approach not be patient-centered."

Others studies show that an emphasis must be placed on the processes utilized by pharmacists to communicate with individual patients in order to identify and solve their drug-related problems, which will allow students to learn how to directly apply knowledge and skills (Kassam & Volume-Smith, 2003; Wislande, 1994). Despite this finding, Zaremski et al. (2005) and Kassam et al. (2008) found that a large proportion of students in the United States experienced insufficient opportunities to practice the patient-centered activities, tasks, and processes that are essential to pharmaceutical care.

The need to use teaching methods that are learner-centered, i.e., active learning methodologies was also clear. For example:

> ". . . The WHO itself says that the major problems existing in healthcare today is the gap between knowing and doing. So, to minimize this gap, I think we need transformative educational practices. Thus, you use what you have

> available to generate content and facilitate skills development in the most participatory way possible . . . ”
>
> “How to teach patient-centered practice in a way that is not focused on the student? It is impractical to teach in a way that is not student-centered. So the practice model that we want to teach must necessarily be centered on the learner, on the student.”

Traditional teaching methods, such as lectures, are commonly used in higher education and may be particularly beneficial for topics requiring lower cognitive levels of learning for which students are primarily recalling information or describing/explaining concepts (**Abate,** Stamatakis & Haggett**,** 2003). However, if achievement of outcomes requires higher levels of cognitive learning (e.g., application, analysis, synthesis), lectures alone will likely be inadequate to meet course outcomes, because lectures place students in a passive, rather than active, role. This occurs because semantic networks consisting of a number of related concepts must be built in order to learn, and these knowledge networks change when new learning is experienced. Thus, when the learners themselves are the center of the learning process (i.e., student-centered learning), they structure, organize, and use new information gained through interactions with their environment that allow for construction of their own knowledge (**Abate,** Stamatakis & Haggett**,** 2003; DiPiro, 2009).

In this sense, Van Amburgh et al. (2007) points out that preparing pharmacy students for practice in the modern healthcare system requires that we rethink pharmacy teaching methodology and go beyond the traditional lecture-based delivery of factual material to incorporate methods that allow for effective application and problem solving in the classroom. In this focus group, several methods were cited that could be used in

pharmaceutical care course. A systematic review carried by authors, with the purpose to analyze the published studies about the teaching of pharmaceutical care found 25 studies, using different teaching methods, including problem-based learning, case studies and simulations.

Active learning has numerous advantages, including effectively bridging the gap between licensure and actual patient experience, engaging students more deeply in the process of learning by encouraging critical thinking, and fostering the development of self-directed learning. These methods benefit students by allowing them the opportunity to practice skills and ask questions, and benefit instructors by affording them the opportunity to assess the students' understanding and remediate important points on a nearly ''real-time'' basis (**Abate,** Stamatakis & Haggett**,** 2003; Van Amburgh et al., 2007). Because of these advantages, the 2007 Accreditation Council for Pharmacy Education (ACPE) Standards and Guidelines addresses the need for active-learning techniques in every phase of pharmacy student education and in continuing professional development for pharmacists (ACPE, 2007).

In addition to the recommendation to use active-learning methods, the literature recommends that educators take into consideration the learning style preferences of undergraduate pharmacy students when developing curricula and evaluating teaching approaches, especially when planning, implementing and evaluating education initiatives in order to create an effective, contemporary learning environment for their students (Williams, Brown & Etherington, 2013). This point was addressed in the focus group as follows:

> "I think anyone who wants to develop a student-centered teaching approach must adopt strategies that consider two important factors: learning is a process, and learning is a highly individual experience. Each student has a way of learning, and this fact must be taken into consideration. There is the influence of the collective, there is the socialization process of learning, but the concrete experience of learning is individual.

> Therefore any strategy has to consider that people learn in different ways, with different mechanisms and different strategies."

Related to the use of active teaching methods is the importance of technology. As active-learning techniques have been encouraged in pharmacy education, an increase in the use of technology has often followed. As noted by Oblinger (2003), the aging infrastructure and the lecture tradition of colleges and universities may not meet the expectations of students raised on the Internet and interactive games. A variety of technological tools are being used in pharmacy education, including computer-assisted instruction, web-based course development/management software, virtual patients, and audio/video recordings (Jabbur-Lopes et al., 2012; Monaghan et al., 2011). Several studies evaluating specific technologies have found positive results, primarily derived from user preferences (Cook et al,. 2008; Davis et al., 2008; Seybert, Kobulinsky & McKaveney, 2008). However, studies should continue to be undertaken to determine how and when to optimally incorporate technology into educational experiences and whether learning is improved with its use (Jabbur-Lopes et al., 2012).

The focus group also addressed the need for an evaluation method that is consistent with the new teaching methods. From a cognitive psychology perspective, testing involves retrieving information from memory or retrieval. It is the act of retrieving information stored in memory (e.g., testing/self-testing) rather than the encoding of information in the brain (e.g., rereading notes) that is believed to be the key mediator of information retention (Karpicke & Roediger, 2007; Kolers & Roediger, 1984). Thus, techniques that promote rapid initial learning often lead to poor long-term retention, while techniques that involve slower, more effortful learning often enhance long-term retention (Hagemeier & Mason, 2011). Abate et al. affirm that testing is important because the development of student learning outcomes is the

foundation to building curricula. Learning outcomes must guide content development and the selection of instructional methodologies. Furthermore, learning outcomes should be derived from the educational mission of the institution, and in the case of pharmacy education, should be congruent with clinical practice.

Barriers to the implementation of new teaching methods in pharmaceutical care and MTM courses were discussed by the focus group. Examples include the lack of resources and the number of students per teacher. According to the literature, tasks such as identifying the most appropriate assessment to use for each type of outcome and interpreting results can be daunting, because most pharmacy faculty lacks background and education/training in these areas. Thus, adequate resources are needed to develop, implement, and maintain a sound program assessment plan (**Abate,** Stamatakis & Haggett**,** 2003). Kassam and Volume-Smith (2003) described the limited number of preceptors who were comfortable with the practice of MTM and the lack of patient care services in community pharmacies that incorporated essential activities of pharmaceutical care as barriers to learning.

There are some limitations to our study. We conducted only one focus group, which may introduce some uncertainty in reaching theoretical saturation. In addition, the results from this focus group, as qualitative research, cannot be extrapolated to other situations.

Conclusion

This study identified skills and knowledge that are perceived by teachers as important in clinical pharmacy practice, for example: identification of a patient's drug-related needs, establishing goals of therapy, communication skills, among others. The suggestions presented in this focus group show the need to implement different teaching methods, such as problem-based learning, case studies and simulations, to enable learning for students in pharmaceutical

care and MTM courses. The next step is to implement and evaluate the new program and determine whether desired learning objectives are being met.

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Table 1. Competencies for pharmaceutical care discussion results.

CATEGORY	SUBCATEGORY	SENSE NUCLEI
COMPETENCIES FOR PHARMACEUTICAL CARE	**KNOWLEDGE (CURRICULUM CONTENT)**	**General content** - Evidence-based health - Historic - Philosophy of practice - Work process (pharmaceutical anamnesis, patient evaluation, identify drug-related needs of patients, establish therapeutic goals, elaborate the care plan, follow-up pharmacotherapy, evaluation of patients, documentation of practice) - Practice management (types of services offered, organization in the health service, remuneration, sustainability of the service system) **Specific content**
	SKILLS	- Communication skills - Pharmaceutical anamnesis - Searching information sources - Assessment of clinical parameters - Administration of medication - Application of pharmaceutical diagnostic instruments (adherence, quality of life, complexity of pharmacotherapy, among others) - Calculations based health evidence and interpretation (relative risk, number need to treat) - Conducting patients interview - Clinical and writing documentation - Development of educational materials

Table 2. Challenges to teaching discussion results.

CATEGORY	SUBCATEGORY	SENSE NUCLEI
CHALLENGES TO TEACH	STANDARDIZATION OF ACTIVITIES	-To standardize the teaching of pharmacy - Determination of the focus of pharmaceutical training
	PLANNING OF CURRICULUM IMPLEMENTATION	- Adjust the curriculum organization: modular or linear - Sort the curricular components: basic, instrumental, vocational - Adjust the curriculum (number of students, hours available, location of the course in the curriculum) - Adjust the skills and contents, and the inter-relationship between them - Adjust the physical structure available for teaching
	TEACHING APPROACH	- Adapt the teacher attitude to the teaching method - Habituate the student to the professional reality - Find a teaching method that encourages the participation of students - Fill the gap between knowledge and know-how - Adapt the content to the prior knowledge of the students

Table 3. Instructional design and evaluation of learning discussion results.

CATEGORY	SUBCATEGORY	SENSE NUCLEI
INSTRUCTIONAL DESIGN	CHARACTERISTICS OF TEACHING METHODS	- Allow cross teaching - Student-centered (active-learning) - Theoretical and practical approach - Approach the professional reality - Patient-centered - Diversify the teaching approach - learning style - Learning for adults (andragogy), holographic learning - Facilitate the process of memorization - Progression of teaching strategies - Use technology (Examples: Moodle, Google teacher; film, video)
	TEACHING METHODS	- Case studies - Problematization - Interview techniques - Simulation (simulated patients, role play, OSCE) - Problem-based learning (PBL) - Research based learning - Project-based learning - Experience based learning or experiential learning - Service learning - Clerkship - Expository dialogical lecture
EVALUATION OF LEARNING	CHARACTERISTICS OF EVALUATION	- Stimulate the learning process - Combine methods - Integrating other disciplines
	METHODS OF EVALUATION	- Peer evaluation - Simulation - Practical evaluation (e.g. competitions, games)

Table 4. Barriers to teaching discussion results.

CATEGORY	SUBCATEGORY	SENSE NUCLEI
BARRIERS TO TEACHING	STRUCTURAL AND OF CURRICULUM	- Lack of practical classes - Lack of physical structure (laboratories simulation) - Insufficient credit hours - Current curriculum guidelines - High number of students per teacher - Lack of monitors
	ASSOCIATED TO TEACHERS AND STUDENTS	- Incompatible teacher profile - Difficulty of teachers in providing feedback

CAPÍTULO IV

4.4. CAPÍTULO IV: Assessment of pharmacy students' skills improvement by using OSCE

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ABSTRACT

Objective: To compare fourth-year pharmacy students' competences for the practice of pharmaceutical care before and after completing a pharmaceutical care course by using OSCE.

Methods: The students' competencies were evaluated using an OSCE format consisting of three stations involving three kind of actors: simulated patients (played by specialists), examiners (played by graduate students), and pharmacists (played by students).The students were asked to carry out a procedure, such as (1) patient education regarding to medication administration technique, (2) measurement of clinical parameters, and (3) invitation of patients to join in a pharmaceutical care service. The students were observed by examiners using a standard checklist. Each student had at most five minutes to complete the tasks in OSCE station.

Results: For both OSCEs proceeded there was no significant statistical difference in normalized scores between the three evaluators (OSCE BC: p=0.7702; OSCE AC: p=0.7479). From the results obtained at OSCE BC stations, most of students obtained low scores in all tasks, revealing their lack of preparation to perform them. The overall performance of students at OSCE AC significantly improved in the most of aspects studied after they attended the Pharmaceutical Care course ($p < 0,05$), except for the invitation to join in a pharmaceutical care service task where no significant statistical difference in scores between the OSCE BC and OSCE AC ($p = 0,06$). Students attained the highest overall scores (7.7 ± 0.0) at the measurement of clinical parameter task.

Conclusion: The survey revealed improving skills of students of the fourth year pharmacy course after attending the Pharmaceutical Care course, in areas such as pharmaceutical orientation, monitoring of clinical parameters and Invitation to join in the service. The performance of the student suggest that the OSCE was a useful tool in testing clinical competence, while allowing them to apply their knowledge into practice, as well as served to encourage its use at other stages in the undergraduate curriculum.

Keywords: OSCE, pharmacy education, skills, competence, clinical assessment.

INTRODUCTION

The pharmaceutical profession involves clinical situations requiring preparation for a sort of functions and specific skills to provide safe patient care. The literature has indicated that pharmacy graduates do not have enough clinical skills to deal with the challenges faced in daily practice (YOUNG et al., 2011; DACEY et al., 2014). Despite the importance of having a broad range of skill to become a competent pharmacist, there is a lack of teaching and assessment systematization in Brazilian Pharmacy courses, far from the recommended formation strategies and therefore highly likely to result in poor learning (TRONCON, 2007). Thus, it is important to enhance Pharmacy education giving them the necessary knowledge and clinical competence, making easier for everyone to breed a suitable professional practice (DEPARTMENT OF HEALTH, 2008).

Over the past years, however, the greatest challenges have been how to measure competence precisely and objectively, as the nature of competence is multi-faceted and influenced by students' level of confidence, comfort and self-efficacy (PIJL-ZIEBER et al., 2014). To promote stronger connections between assessment, teaching and learning there is growing recognition of the need for change in the assessment of learning (MAK; LEE 2014.). Appropriate methods of assessment of clinical skills should be put in place to help determine whether students have achieved the level of competence required to practice as professionals.

Traditionally, Pharmacy colleges have evaluated students' clinical skills using multiple-choice questions and essay (AWAISU et al., 2010). Multiple choice questions and oral examinations could be used to test knowledge (WASS et al., 2001), however, these evaluation methods cannot adequately assess the essential skills domain and measure cognitive learning in clinical settings simultaneously (MONAGHAN et al., 1995; STOWE, GARDNER, 2005). Thus, other methods to assess clinical performance are needed. The Objective Structured Clinical Examination (OSCE) has been identified as a useful assessment strategy for evaluating students' learning and clinical performance in the medical, nursing and pharmacy disciplines (BYRNE; SMYTH et al., 2008; HOUGHTON et al., 2012; WALSH; BAILE; KOREN, 2009; SHADIA et al., 2010; BRANCH et al., 2014).

This method allows us to test a range of knowledge and attitudes, being accepted as an appropriate instrument to measure the clinical reasoning skills (BHAT; ANALD, 2006; SHADIA et al., 2010; KATOWA-MUKWATO et al., 2013.). Unlike traditional clinical examination, OSCE can evaluate the performance of the most critical health professions

issues, e. g.: the ability to obtain or interpret data or even to solve problems, communication skills, decision making and dealing with patient's unpredictable behavior (ZAYYAN, 2011).

Up to now, few studies have examined the effects of using OSCE as a strategy to measure students' clinical competence before to the implementation of pharmaceutical care subject in the academic curriculum. Thus, the purpose of this study was to assess students' performance in the practice of pharmaceutical care by comparing their competence scores before and after they attended the pharmaceutical care discipline by applying OSCE evaluation tool.

METHODS

Synopsis of the pharmaceutical care course

The study was developed at the Federal University of Sergipe, Brazil, involving thirty six undergraduate pharmacy students in their last year. Before to the actual examination, students attended the pharmaceutical care course - a sixty-hour obligatory learner-centered subject taught by a PhD in Pharmaceutical Care professor having around ten years of experience in teaching and pharmaceutical practice. The mentor was assisted by two PhD students also involved in the same field of study for two and three years, respectively. Before and during the pharmaceutical care course, the team held regular meetings to share ideas about the needs, objectives, teaching strategies, and content of the course.

The course was designed to provide the fundamentals of the pharmaceutical care philosophy and to stem the necessary competencies for the practice of pharmaceutical care. It was aimed to expose the students to practical aspects of pharmacy towards to patient care and drug therapy. Students were given the opportunity to put their knowledge in pharmaceutical care in practice, emphasizing the role of pharmacists in patient care. The assessment methods included OSCE combined with seminars and open-ended written tests.

Teaching methods used

The role-play technique was used for the teaching of the following content: drug administration, measurement of clinical parameters and invitation to join in a pharmaceutical care services. In the role-playing exercises, the pharmacy students must initiate patient-pharmacist interactions, assess clinical parameters, offer counseling concerning medication use, and/or to invite the patient to use pharmaceutical care services. In this lesson the patient role is played by another pharmacy student. At the end of the scene the roles are reversed. The roles were distributed, allowing each student 5–10 minutes to review his/her role and ask the instructors for clarifications of the questions.

For the teaching of communication skills and establishment of the therapeutic relationship the technique of simulated patient was used. A postgraduate pharmacy student trained to play the role of a patient presents a standardized scenario. The simulated patient interacts with the pharmacy student and the student works to resolve the problem of patient and to establish a therapeutic relationship

OSCE station

A network consisting of a three-station OSCE was designed and implemented before (defined as "OSCE BC") and after (defined as "OSCE AC") pharmaceutical care course. OSCE BC was applied to assess previous knowledge and skills of students and also to achieve the objectives and learning outcomes of the pharmaceutical care discipline. OSCE AC was employed to evaluate student's ability to demonstrate and apply their knowledge and acquired clinical skills to real life simulated situations. The examination encompassed areas supposedly pertinent to contemporary pharmacy practice related to clinical pharmacy course requirements and expected learning outcomes. Students were asked to complete their tasks within 5 minutes at each station and were assessed through a structured and standardized form. All OSCE sessions were video recorded.

The stations had the following objectives: (1) to provide clear and detailed information on the correct medication use; to explain and demonstrate drug use technique; (2) to prepare the patient and to carry out clinical procedures; (3) to invite patients to join in a pharmaceutical care service, emphasizing its meaning, purpose and how it works. In addition, communication skills of students were observed during the stations as the use of appropriate terms to make easier the comprehension by the patients; to keep eye contact; and to show available. A synthesis of the tasks realized by the students at OSCE stations is shown in Table 1.

Participants

All the thirty six final year undergraduate Pharmacy students who applied for the Pharmaceutical Care course in the first semester of 2014 were surveyed via OSCE. We excluded those ones who did not participate in the two OSCEs.

In each station the sessions were carried out involving three kind of actors: simulated patients (played by specialists), examiners (played by graduate students), and pharmacists (played by students). When performing the clinical tasks, students interacted with simulated patients, where they are required to perform different clinical tasks.

Prior to the examination, a briefing session was held just before the assessment to inform students about examination regulations and their role in the OSCE. Each student waited in the assessment room and had only one chance to perform the skill learned. The other students from the corresponding teaching group waited their respective turn in an apart room under supervision.

Simulated patients

In order to minimize bias and to avoid inconsistency in the tasks given to examinees, the simulated patients were instructed to follow a standardized script and were properly trained on days before the OSCE sections. The training consisted of role-playing for possible interactions with pharmacist students during the OSCE (HANYA et al., 2014), including items related to the communication way (verbal and non-verbal presentation of signs and symptoms) and pharmacotherapy. In addition, simulated patients were prepared to answer questions from students about the signs and exhibited symptoms.

Stations were based on everyday scenarios of pharmaceutical care practice according to the course syllabus, targeting the learning outcomes. Thus, the students were tested on the following clinical scenarios: hypertension, diabetes, asthma, allergic rhinitis, constipation, and vaginal disorders (Table 1).

Assessment

Student competences were assessed before and after the completion of the pharmaceutical care course by using OSCE. In this study, competence is considered as a student's performance to complete tasks appropriately, independently, and without assistance or guidance from the instructors. The student performance in the seven tasks showed in Table 2 was judged by three evaluators using assessment tool with a checklist containing detailed descriptions of required competencies. This tool took in account a fourth-point scale: (0 = not done, 1 = unsuitably done, 2 = incompletely done, and 3 = suitably done), except for the issue "Pharmacist self-presentation" that ranged as follow: 0=worse, 1=bad, 2=regular, 3=good, 4=excellent.

Table 1 – Summary of OSCE stations

Stations/ Competency	**Task**	**Pharmaceutical form /Clinical Parameter**	**Simulated Patient Information**
1.Pharmaceutical orientation	Pharmacist self-presentation Preparation for drug administration Drug administration Confirmation of patients/comprehension	Nasal spray	Patient 1: Female, 68 years old, hypertense, drug: fluticasone furoate
		Metered-dose inhalers	Patient 2: Female, 70 years old, with diabetes mellitus, drug: fluticasone propionate
		Dry powder inhaler (type Aerolizer)	Patient 3: Female, 65 years old, hypertense, drug: formoterol fumarate
		Enema	Patient 4: Female, 72 years old, with hypertension and osteoporosis, drug: monobasic sodium phosphate
		Vaginal cream	Patient 5: Female, 36 years old, with diabetes mellitus, drug: isoconazole nitrate
2.Measuring clinical parameters	Preparation of patients to the measurement Measurement of clinical parameter	Blood pressure Blood glucose	Patient 1, Patient 3 and Patient 4 Patient 2 and Patient 5
3.Invitation	Invitation to join in a pharmaceutical care service		All the patients

The assessment tool was previously validated by a team of three pharmacists through a review and consensus process. All of them had experience about how OSCEs works. The purpose of the validation was to guarantee that the tasks at the stations were meant to measure the clinical competencies of the students and the appropriateness of the discrete items used for scoring the performances of the examinees. Each of the students was evaluated independently by all of the judges.

At the end of the course, students were asked to answer four questions about the evaluation method: (1) In this type of method I feel a lot of pressure to perform well, (2) This method is useful in verifying my learning, (3) The criteria for correctness of the assessments were appropriate, (4) The assigned grade reflects my learning. The questions were answered using a Likert scale: (1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree Nor Disagree; 4 = Agree; 5 = Strongly Agree).

Data analysis

From the quantitative data generated during students' performance survey at the OSCE stations registered in the form of a checklist, a descriptive analysis of was carried out using Microsoft Excel for Windows 2013. Data were compiled to obtain students' averaged performance before and after pharmaceutical care course. Raw data were changed into a normalized score ranging from 0 to 10 to every chosen parameter described above, using the following formula:

$$\textit{Normalized score} = (\textit{original score}) / (\textit{maximum grade}) \times 10$$

being the maximum grade the sum of the maximum scores in the various sub-items of each item evaluated. The normalized score was used for the calculation of statistical parameters.

Arithmetic averages were calculated to each task included in the survey encompassing the results obtained for all students. Normalized scores were compared between examiners through ANOVA and subsequently by using Student t-test to determine if there was a difference between students' examination grades at the both OSCE stations. A p-value of ≤ 0.05 was taken as significant.

Ethical aspects of the research

The participants of the study were invited to ratify their collaboration by signing a free agreement confidentiality term when they were advertised about of the goals, procedures, possible discomforts and expected benefits of the research. Likewise, this work was approved by the ethic and research committee of the university.

RESULTS

Sample characteristics

Thirty out of 36 students completed the OSCE BC and OSCE AC. Most students surveyed were female (73.33%), aged between 21 and 25 years (86.67%), attending the fourth year (96.67%).

OSCE Performance

The normalized scores obtained for the seven tasks of evaluated at OSCE stations are compiled in the Table 2 for each one of examiners and the global normalized mean, before and after the students have attended the Pharmaceutical Care course. For both OSCEs held there was no significant statistical difference in normalized scores between the three evaluators (OSCE BC: $p = 0.7702$; OSCE AC: $p = 0.7479$). We can see that the overall performance of students significantly improved in the most of aspects studied after they attended the Pharmaceutical Care course ($p < 0,05$), except for the invitation to join in a pharmaceutical care service task where no significant statistical difference in scores between the OSCE BC and OSCE AC ($p = 0,06$). Students attained the highest overall scores (7.7 ± 0.0) at the measurement of clinical parameter task.

The Figure 1 and Figure 2 show relative quantity of students and their performance, at OSCE BC and OSCE AC respectively, by evaluated task. From the results obtained at OSCE BC stations, the most of students obtained low scores in all tasks, revealing their lack of preparation to perform them. Sixty percent of students did not perform their self-presentation when they receive the patient at the pharmacy. In situations that involved the preparation of the patient for medication administration and to measure the clinical parameter almost all the students did not performed these tasks (93% and 100%, respectively) or performed improperly. Contrasting this trend, at OSC AC, these percentages decreased to 37%, 34% and 33% respectively.

Table 2 – Average normalized scores of OSCE tasks

Tasks	Examiner 1		Examiner 2		Examiner 3		Before	After	
	Before	After	Before	After	Before	After	Mean ± SD	Mean± SD	p-value
Pharmaceutical self-presentation	3.1	4.7	3.1	5.3	3.3	4.9	3.1 ± 0.00	4.9 ± 0.3	0,01
Preparation for medication administration	0.3	5.3	0.3	5.3	0.3	5.3	0.3 ± 0.00	5.3 ± 0.0	1
Drug administration	0.2	7.1	2.1	8.2	0.2	7.1	0.8 ± 1.10	7.5 ± 0.07	0,01
Confirmation of patients' comprehension	1.0	4.4	1.1	5.3	1.0	4.4	1.0 ± 0.05	4.7 ± 0.5	<0,01
Preparation of patients to the measurement	0.0	3.7	0.0	4.3	0.0	3.7	0.0 ± 0.00	3.9 ± 0.4	<0,01
Measurement of clinical parameter	0.6	7.7	1.2	7.7	0.6	7.7	0.8 ± 0.37	7.7 ± 0.0	<0,01
Invitation to join in a pharmaceutical care service	3.7	6.7	5.1	7.7	3.7	6.7	4.2 ± 0.83	7.0 ± 0.6	0,06
Global Normalized Mean	**1,3**	**5,6**	**1,8**	**6,3**	**1,3**	**5,9**	**1,5**	**5,9**	<0,01

SD = standard deviation.

Figure 1: Percentage of students and their performance by evaluated task at OSCE BC

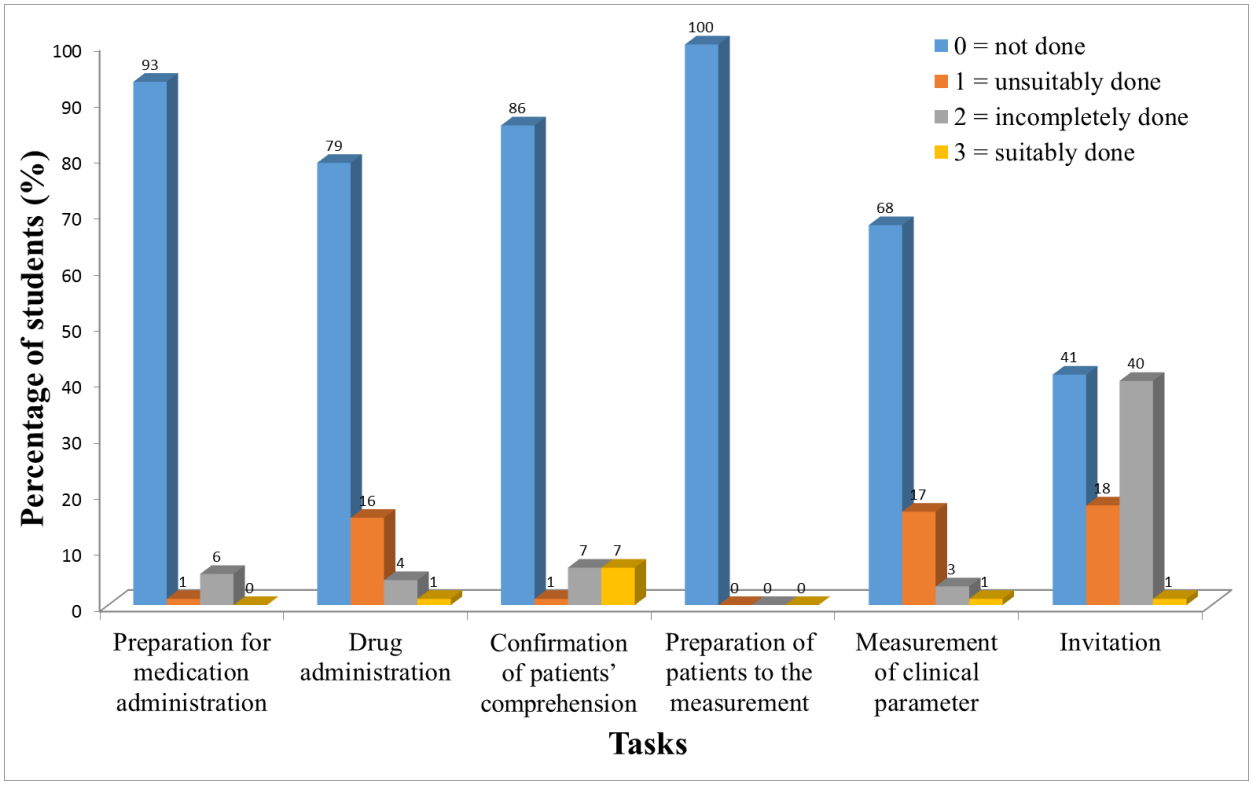
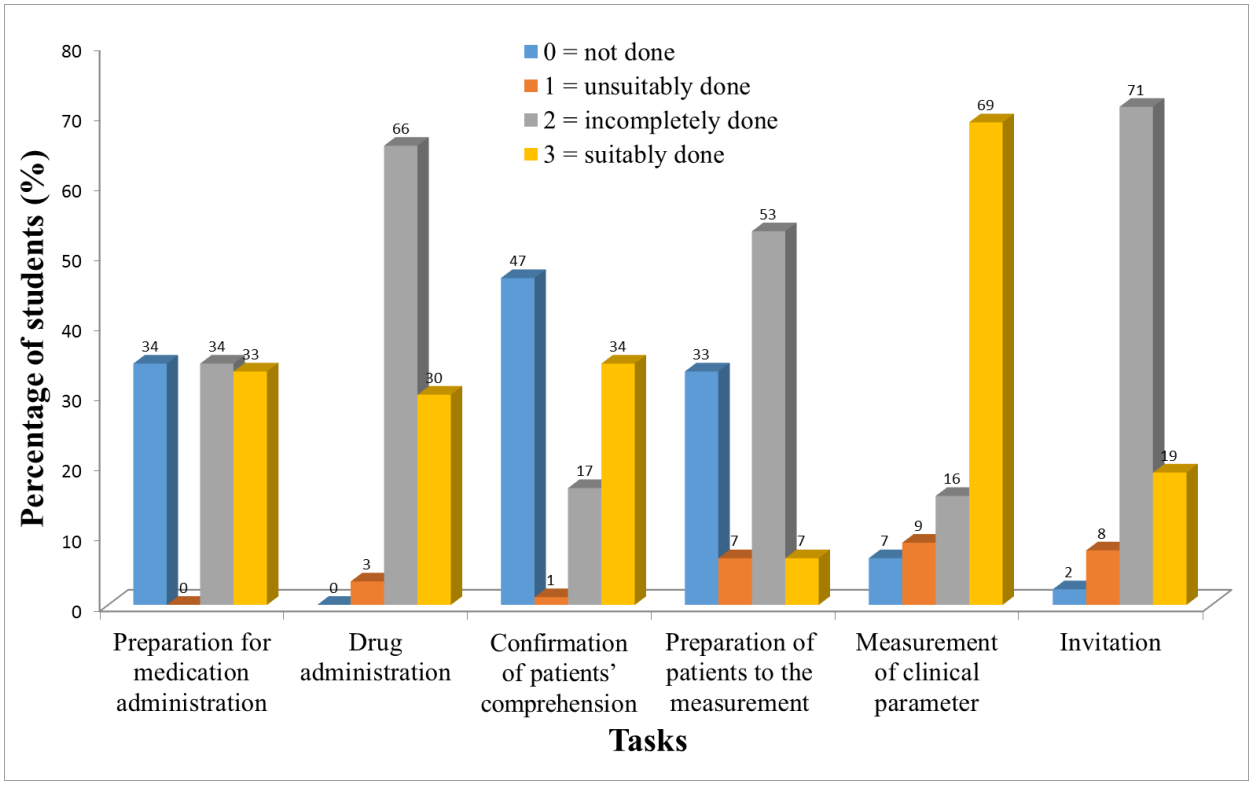


Figure 2: Percentage of students and their performance by evaluated task at OSCE AC



As noted by the examiners, at OSCE BC stations, most of the evaluated students were unable to explain the tasks of the drug administration to the patient (79%), to confirm the understanding of the patient on the proper use of the drug (86%) and to measure the clinical parameter (68%). In counterpart, after attending the Pharmaceutical Care course, this number reduzed to zero, 7% and 47%, respectively. To confirm the understanding of the information received on the use correct of medicines most students asked the patients to demonstrate how to use the medicine.

An overwhelming number of students did not perform the three tasks of the pharmaceutical orientation station at OSCE BC (Table 1), especially to the drugs as nasal spray (79%), metered-dose inhalers (98%) and, dry powder inhaler (87%). However, the performance of the students for this station at OSCE AC improved, mainly to the drugs as nasal spray (63%), enema (73%), vaginal cream (77%). Besides, during the invitation of patients to the pharmaceutical care service, 71% of participants explained the task, its purpose and how it works. Regarding to communication skills during the sessions, one hundred percent of student's maintained eye contact, 57% of them used suitable terms to improve patient's comprehension. Moreover, at the end of the stations, 47% showed available to help patients regarding to their therapy.

Evaluation method

According to the students, the evaluation through OSCE is useful in verifying learning, however the students felt a lot of pressure to perform well with the use OSCE (4.07 ± 1.08). Furthermore, the students were undecided for assessment of the items "the criteria for correctness of the assessments were appropriate" and "the assigned grade reflects my learning".

DISCUSSION

The practice of pharmaceutical care involves macro-components such as pharmaceutical care, health education, dispensing, pharmaceutical care and pharmacotherapeutic follow-up, besides the systematic recording of activities, measurement and evaluation of results (OPAS, 2002). Thus, Pharmacy students must have knowledge and skills to guide patients regarding to the administration of medication, capability of adequately measuring clinical parameters, ability to invite a patient to participate in a pharmaceutical care service, and effectively communication with patients. These issues are important to the practice of patient-centered pharmaceutical care. This requires an evaluation of skills acquired by the students along their academic education. To become a qualified pharmacist, students

need to make sure that their clinical skills are suitable to such practice (RUTTER, 2002). The proper assessment Pharmacy students on clinical skills should be used to predict their ability to perform this expertise. This justifies the set of tasks planned in the study to assess student performance in each OSCE station.

In this study, students displayed improved in the performance overall at OSCE stations after attended the pharmaceutical care course, but this performance can be refined to boost their competencies at the student–patient interaction. During the year, students enrolled on the course were provided with learning opportunities to enable them to apply their knowledge and skills into practice through role-play (between students and their peers or staff) and patient simulated. This exposure may have empowered them to feel more comfortable with the pharmacist–patient interaction.

Students also improved their performance in the self-presentation task. Upon receiving the patient, when he approaches the station, the pharmacist must identify him, apply a welcoming attitude and create an empathic situation to start the remaining steps of the pharmaceutical care. According to Alano (2005), the trust in the pharmacist is obtained at the first glance in the reception, when it realizes that the professional have the technical knowledge coupled with careful attitudes. In addition, at the OSCE AC stations, students prefer to call patients by name, which, according to Berger (2005), it is easier to develop the therapeutic relationship, defined by Cipolle, Strand and Morley (1998) as a relation between pharmacist and patient, in which they recognize and assume the roles and responsibilities of both parties in an active participation.

Higher overall scores significant of the students were found in the pharmaceutical orientation about medication administration and measurement of clinical parameter. Results similar in students' performance were reported in other pharmacy studies albeit involving students in the later stages of the curriculum. Corbo et al. (2006) evaluated final-year students' performance at the various OSCE stations and found that students gave their best performance at stations involving patient counseling.

Many patients seek for instructions on the proper use of drugs together health professionals, especially pharmacists, but it is common to face a lack of preparedness, knowledge and skills (PRICE et al., 2013). As a result, patients can receive the drug for treatment, but without education and training on the proper use, being the lowest therapeutic benefit that the ideal. (LAVORINI et al., 2008). West et al. (2002) affirmed that the patients who go to a pharmacy have the expectation of finding a pharmacist with appropriate education, and with qualities such as intelligence, sympathy, patience and has knowledge and

consistency in the passage of information. Therefore, Pharmacy students should know how to provide concise information suitable to the patients' needs.

In addition, we must use a language that patients can understand. Sometimes, this is a difficult transition for pharmacy students: understand pharmaceutical terminology and use a language accessible to the patient. This requires careful consideration about the terms used and possibly learns more comprehensible terms (MCDONOUGH; BENNETT, 2006). It is advisable that pharmacists have appropriate communication skills in order to better serve their patients (HASAN, 2008). The results showed that the students knew how to use communication skills to interact with patients and to improve their comprehension. Similar findings were found in studies of the (BARLOW; STRAWBRIDGE, 2007) displayed good communication skills and their performance was consistently good at stations involving patient interaction. In contrast, final-year students in a study by Rutter (2002) performed poorest at the counseling stations despite them undertaking prior training in communication skills and having practice sessions at counseling simulated patients. Possible causes of students' poor performance were attributed to students' complacency in thinking that communication was an easy skill and lack of self-reflection.

Regarding to ensure understanding of information received by the patient the students assessed asked the patients to demonstrate how to use the medicine. It is noteworthy that a good communication skills significantly compromises patient care. The student does not necessarily need to ask patients if they "understood the instructions," but, in the context of pharmaceutical care, he must ensure that this understanding has occurred, for example, asking to demonstrate how to use the medicine (COVINGTON, 2006; NIMMO; HOLLAND, 1999). The most effective technique for teaching patients about the proper use of medicines has been the verbal information combined with physical demonstration (PRICE et al., 2013; BASHETI et al., 2005). According to Bosnic-Anticevich- et al. (2010), the adoption of a physical demonstration on the proper use of medicine, given by the pharmacist to the patient, results in better retention of information. As stated by Campmany (2006), the pharmacist must ensure if the patient has the necessary information to understand and to use a drug delivered to it safely and effectively. In this sense, Pepe and Castro (2000) point out that the information provided to patients during the administration of the medication is as important as the product received.

BASHETI et al. (2007) demonstrated that a simple intervention of education during of 2.5 min, delivered by a trained community pharmacist, not only improved significantly the technique of administration of the drug by the patient, but also resulted in improvements in controlling disease. Therefore, interventions that reduce the error in drug administration can

improve patients' health outcomes (PRICE et al., 2013; LAVORINI et al., 2008). Some studies evaluating health professional skills demonstrated that pharmacists have significantly increased their knowledge and skills after receiving educational interventions, as corroborated by this study. (KIM, 2009; BASHETI et al., 2009).

In pharmaceutical care, among other activities specific to patient care, the pharmacist must perform the monitoring of patient outcomes, what requires a structured yet responsive approach by the pharmacist that considers the important potential outcomes (COMMITTEE OF SPECIALTY PRACTICE IN CLINICAL PHAMACY, 2005). Despite the best performance in this task in the OSCE BC, the patient preparation for the procedure deserves attention because it can interfere in the result and consequently in pharmacists' decision making regarding to patient's treatment. A large number of students explain the pharmaceutical care service. This shows their knowledge on their professional duties and responsibilities, mostly with respect to this model of practice in which understand attitudes, ethical values, behaviors, skills, commitment and co-responsibilities on disease prevention, health promotion and recovery. This reinforces what was pointed earlier, about on improving skills of the fourth year course students for pharmaceutical practice.

As you would expect, students' performance improvement could be attributed to the development of the skills studied in the course of pharmaceutical care. However, students need more practice. The pharmaceutical care course was offered in a single module in the final year of Pharmacy course. Moreover, the limited contact of students with real situations and few opportunities to improve their communication and, problem solving skills, may have contributed also to the performance of students assessed at OSCE AC lower than expected. Having a more accurate assessment of a student's clinical skills while they are in the learning environment of a pharmacy school curriculum allow adjustments of their practice in order to strengthen their skills. OSCEs can provide information on learning deficiencies the students (LANGFORD et al., 2004). The advantage of introducing the OSCE is to establish a goal for students to strive in terms of bringing together knowledge, understanding, and application in practice (EVANS et al., 2011). In studies to explore the views of fourth-year pharmacy undergraduates on the use of the OSCE, some students felt that the OSCE was introduced too late and made suggestions for it to be introduced at an earlier stage in the pharmacy curriculum. Thus, students would be given more opportunities to improve upon their communication skills and grow in self-confidence (AWAISU et al., 2007, RUTTER, 2002, BARLOW; STRAWBRIDGE, 2007).

According to the student assessment in this study, the OSCE has been reported as useful to check the learning. Similar findings were found in others studies in that the students rated the OSCE as a good learning and valuable practical experience (AWAISU et al., 2007; RUTTER, 2002; PIERRE et al., 2004; BRANCH, 2014). The results showed that the course of the pharmaceutical care appeared to be effective, since the students' competencies increased in areas that are specific to pharmaceutical care services, such as pharmaceutical orientation, monitoring of clinical parameters and Invitation to join in the service. To gain the skills needed for the practice of pharmaceutical care, Pharmacy students and patients should be adequately educated and trained (LAVORINI et al., 2008). Salinitri et al. (2012) suggest that the evaluation based on performance, along with other tools, provides a more comprehensive analysis of student learning at higher levels.

CONCLUSION

The research revealed that the course of the pharmaceutical care was effective, since the students' competencies increased in areas that are specific to pharmaceutical care services, such as pharmaceutical orientation, monitoring of clinical parameters and Invitation to join in the service. The performance of the student suggest that the OSCE was a useful tool in testing clinical competence, while allowing them to apply their knowledge into practice, as well as served to encourage its use at other stages in the undergraduate curriculum.

LIMITATIONS AND PRACTICE IMPLICATIONS

Due to small sample size, we could not generalize our findings to the whole target population. Similar studies with larger sample for more expandable results are recommended. Besides the great operational challenge, there are other limitations, including time and considerable cost (installation, personal). Considering the standards of the OSCE, reevaluation with an increased number of stations is recommended.

The future of pharmaceutical education points to a curriculum that promotes since the very beginning of the course the integration of science with practice. The competency based education and curriculum assessment has been disseminated in Pharmacy schools around the world. There is evidence that increasing the experimental workload and contact with patients are directly related to the increase in performance and confidence of pharmacists. The results of this study suggest that the use of OSCE in the assessment of students of other course stages can bring benefits for graduates, identify areas of potential interest for research or even to work as a proficiency test for future professionals.

ACKNOWLEDGMENTS

The authors acknowledge pharmaceutical care students of Federal University of Sergipe and Brazilian National Council for Technological and Scientific Development (Capes; Coordination of Superior Level Staff Improvement) by financial support.

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CONSIDERAÇÕES FINAIS

5. CONSIDERAÇÕES FINAIS

5.1. Conclusão

- Os estudantes de farmácia avaliados neste estudo não se sentem preparados para tomar decisões, resolver problemas e lidar com o comportamento imprevisível dos pacientes. O estudo revelou que há foco menor na aquisição de conhecimentos e habilidades essenciais para o cuidado ao paciente e uma efetiva relação com outros profissionais de saúde, o que exige educação mais específica voltada para a área clínica.
- Diferentes métodos de ensino são descritos em estudos sobre atenção farmacêutica em todo o mundo. No entanto, na maioria destes, os métodos de avaliação não estão de acordo com os métodos de ensino descritos.
- Segundo especialistas, é necessário que os estudantes obtenham: conhecimentos sobre doenças específicas, o uso de medicamentos, detecção e resolução de problemas relacionados com medicamentos, os cuidados em diferentes fases da vida, documentação das intervenções e monitoramento da terapêutica do paciente ao longo do tempo; além do domínio de habilidades para assumir responsabilidades na orientação ao paciente, na comunicação efetiva com outros profissionais de saúde, na tomada de decisões e para lidar com o comportamento imprevisível dos pacientes; todos importantes para a prática clínica da farmácia e para prestar o cuidado devido ao paciente.
- A avaliação dos estudantes do quarto ano do curso de farmácia revelou melhorias das suas competências clínicas após frequentar a disciplina de atenção farmacêutica, em áreas como a orientação farmacêutica, a monitorização dos parâmetros clínicos e convite do paciente para ingressar no serviço. O desempenho dos estudantes sugere que a OSCE foi uma ferramenta útil para testar as competências clínicas, permitindo-lhes aplicar seus conhecimentos em prática, bem como serviu para incentivar o seu uso em outras etapas do currículo de graduação de farmácia.

5.2. Perspectivas

Para o futuro, este estudo aponta a necessidade de reformulação curricular, contemplando métodos de avaliação de competências dos estudantes adequados à realidade contemporânea, para abranger a assimilação de conhecimentos, o desenvolvimento de

habilidades práticas, durante a graduação em Farmácia, relevantes para o alcance do alto desempenho profissional.

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APÊNDICES

7. APÊNDICES

7.1. APÊNDICE A – Roteiro para realização do grupo focal – estudantes

( ) Apresentação (pedir pra colocar celular no silencioso)
( ) Objetivo do encontro, descrição do Grupo Focal, informar duração
( ) Importância da Participação de Cada um e importância das opiniões => Regras: falar um de cada vez, e respeitar as opiniões do demais participantes.
( ) Agradecimento pela disponibilidade em participar
( ) Confidencialidade (filmagem) – passar termo de consentimento
( ) Apresentação dos participantes (nome, período)

PALAVRAS-CHAVE

Contribuição do curso para prática profissional, cuidado ao paciente, atenção farmacêutica.

1 – Na opinião de vocês o curso de Farmácia prepara para prática, ou seja, para o mercado de trabalho?

Vocês saem preparados pra que áreas? Indústria, alimentos...
Foco do curso
Saem sem conhecimento de que?
Quais as lacunas vocês identificam?
Não tem preparação. Como assim?
Sai sem conhecimento de que?
Não conhecem sobre medicamento... como assim? O que vocês acham importante sobre medicamentos que vocês precisam saber
O que dá prática falta? O que vocês
Como assim pesquisa científica?
O que seria mais práticas? O que vocês gostariam?

2 – E vocês acham que o curso prepara para o cuidado ao paciente?

Qual o papel do farmacêutico no cuidado?
Quais as lacunas vocês identificam?
Que contato vocês têm hoje? Que tipo de contato vocês gostariam de ter com pacientes?
Vocês têm conhecimentos e habilidades para cuidado ao paciente? O que falta? Vocês poderiam hoje atender a um paciente?

7.2. APÊNDICE B – Roteiro para realização do grupo focal – professores

( ) Apresentação (pedir pra colocar celular no silencioso)
( ) Objetivo do encontro, descrição do Grupo Focal, informar duração
( ) Importância da Participação de Cada um e importância das opiniões => Regras: falar um de cada vez, e respeitar as opiniões do demais participantes.
( ) Agradecimento pela disponibilidade em participar
( ) Confidencialidade (filmagem) – passar termo de consentimento
( ) Apresentação dos participantes (nome, universidade, a quanto tempo)

PALAVRAS-CHAVE

Atenção Farmacêutica, Conhecimentos e Habilidades, Métodos de Ensino ou estratégias de aprendizagem.

1 – Quais os conhecimentos devem ser ministrados na disciplina de Atenção Farmacêutica?

2 – Que habilidades são necessárias para prática de atenção farmacêutica, que devem ser ministradas na disciplina?

Comunicação (verbal/não verbal) com os pacientes e profissionais de saúde
Habilidade de escuta
Desenvolver um relacionamento terapêutico com os pacientes
Gerir o tempo de forma eficaz e priorizar tarefas

3 – Para atingir estes conhecimentos e habilidades, que tipos de estratégias de aprendizagem ou métodos de ensino podem ser utilizados?

( ) Teórico x Prático (aula expositiva)
( ) Tipos de prática (problematização, paciente simulado, role play, grupos de discussão)
( ) Quanto tempo com paciente reais?
( ) Um semestre é suficiente?

7.3. APÊNDICE C – Termo de consentimento livre e esclarecido

Você está sendo convidado a participar de um estudo intitulado "**O ensino de habilidades necessárias para a prática de atenção farmacêutica**" cujo objetivo é aprimorar a disciplina de Atenção Farmacêutica por meio do uso de novas metodologias de ensino-aprendizagem e avaliar a aquisição de habilidades dos estudantes.

Eu, _____ **(nome do estudante), portador do RG nº** _____, **li o texto acima e compreendi a natureza e objetivo do estudo do qual fui convidado a participar. A explicação que recebi menciona os riscos e benefícios do estudo. Recebi informações a respeito e esclareci minhas dúvidas. Fui esclarecido que tenho liberdade de me recusar a participar, sem penalização alguma e sem qualquer prejuízo. Autorizo a áudio gravação e a utilização dos meus dados e fotos como fonte para elaboração da tese de doutorado e sua posterior publicação, em forma de livro e/ou artigo. A farmacêutica-pesquisadora certificou-me de que todos os dados serão confidenciais e serão unicamente de uso da mesma, para os fins supracitados.**

Eu concordo voluntariamente em participar do estudo

Firmo o presente,_____

São Cristóvão, _____/_____/_____.

Nome da Pesquisadora: Werlissandra M. de Souza **Endereço: Av. Marechal Rondon, s/n, Jd. Rosa Elze, São Cristovão-SE** **CEP: 49.100-000 Telefone: (79) 9964-4383**	**Nome do Pesquisador: Divaldo Pereira de Lyra Jr.** **Endereço: Av. Marechal Rondon, s/n, Jd. Rosa Elze, São Cristovão-SE** **CEP: 49.100-000 Telefone: (79) 9192-5577**

ANEXOS

8. ANEXOS

8.1. ANEXO I – Parecer do comitê de ética em pesquisa CEP/UFS

HOSPITAL UNIVERSITÁRIO DE ARACAJÚ/ UNIVERSIDADE FEDERAL DE SERGIPE/ HU-

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: IMPACTO DO ENSINO NO DESENVOLVIMENTO DE COMPETÊNCIAS NECESSÁRIAS PARA A PRÁTICA DA ATENÇÃO FARMACÊUTICA.
Pesquisador: Werlissandra Moreira de Souza
Área Temática:
Versão: 1
CAAE: 26475014.8.0000.5546
Instituição Proponente: FUNDACAO UNIVERSIDADE FEDERAL DE SERGIPE
Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 559.860
Data da Relatoria: 14/03/2014

Apresentação do Projeto:
Essa pesquisa visa avaliar o impacto do ensino de metodologias ativas no desenvolvimento de competências necessárias para a prática da Atenção Farmacêutica. Inicialmente eles farão uma revisão sistemática da literatura para identificar estudos sobre o ensino da Atenção Farmacêutica. Depois farão 3 grupos focais: serão convidados a participar do primeiro todos os docentes de Universidades do Brasil que ministram a disciplina Atenção Farmacêutica para obtenção do referencial dos conteúdos e habilidades recomendáveis inerentes à prática da Atenção Farmacêutica e para promover mudanças no ensino da disciplina Atenção Farmacêutica do Curso de Farmácia da Universidade Federal de Sergipe; o segundo será composto por profissionais chaves, contemplando os setores público e privado e os diversos segmentos da área farmacêutica, para avaliar se a formação atual no curso de Farmácia de universidades brasileiras prepara o aluno para a prática da Atenção Farmacêutica; e o terceiro formado por todos os alunos matriculados na disciplina de atenção farmacêutica, no período de abril a agosto de 2014, para avaliar as expectativas dos alunos em relação a disciplina. Este ocorrerá antes e após a implantação das metodologias ativas para verificar se essas expectativas foram alcançadas. Através de uma abordagem a pesquisa documental será analisado se o ensino dessas habilidades constam nos programas de Cursos de Farmácia de universidades brasileiras. O espaço amostral será constituído

Endereço: Rua Cláudio Batista s/nº
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pelos Cursos de Graduação em Farmácia das Instituições Federais de Ensino Superior (IFES) do Brasil.

Objetivo da Pesquisa:

Objetivo geral: Avaliar o impacto do ensino no desenvolvimento de competências necessárias para a prática da atenção farmacêutica.

Objetivos específicos:

¿ Desenvolver uma revisão sistemática para identificar estudos sobre o ensino da Atenção Farmacêutica no mundo

¿ Obter junto aos especialistas conteúdos e habilidades recomendáveis para formação adequada à prática da Atenção Farmacêutica

¿ Avaliar se a formação atual no Curso de Farmácia de universidades brasileiras prepara o aluno para a prática da Atenção Farmacêutica

¿ Analisar o ensino de habilidades nos programas da disciplina Atenção Farmacêutica de cursos de farmácia de universidades brasileiras

¿ Implantar metodologias ativas de ensino na disciplina Atenção Farmacêutica

¿ Avaliar o impacto da introdução das metodologias ativas nas habilidades dos alunos

Avaliação dos Riscos e Benefícios:

O principal risco será o de constrangimento. O benefício será o de discutir e provcar uma reflexão sobre a educação farmacêutica em Sergipe e estimular a adoção de novas metodologias de aprendizagem mais adequada na formação do profissional para a prática da Atenção Farmacêutica.

Comentários e Considerações sobre a Pesquisa:

Pesquisa relevante para o aperfeiçoamento das práticas pedagógicas na área da saúde

Considerações sobre os Termos de apresentação obrigatória:

Termos de apresentação obrigatória estão adequados

Recomendações:

Conclusões ou Pendências e Lista de Inadequações:

Sugiro a aprovação do projeto

Situação do Parecer:

Aprovado

8.2. ANEXO II – Comprovantes de submissão dos artigos

Capítulo I: Assessment of student's perception on the lack of preparedness to the pharmaceutical practice

Journal of Research in Science Teaching

Manuscript # JRST-2014-12-0478 Submitted(5) Pessoas

Para eu

Dear Miss Souza:

Your manuscript entitled "Assessment of students' perception on the lack of preparedness to the pharmaceutical practice" has been successfully submitted online and is presently being given full consideration for publication in the Journal of Research in Science Teaching.

Your manuscript # is JRST-2014-12-0478

Please mention the above manuscript # in all future correspondence regarding this submission.

Your manuscript is being checked by the JRST Editorial Office to confirm that it is in compliance with the journal's stated criteria. You will be notified when the formatting check is complete. You can view the status of your manuscript at any time by checking your Author Center after logging into https://mc.manuscriptcentral.com/jrst.

Thank you for submitting your scholarly work for publication in the Journal of Research in Science Teaching.

Sincerely,

Editorial Office
Journal of Research in Science Teaching
Michigan State University
Telephone: 517-432-4862
Fax: 517-432-2795

Capítulo II: Education in pharmaceutical care: a systematic review

African Journal of Pharmacy and Pharmacology

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African Journal of Pharmacy and Pharmacology

Acceptance Certificate

Date:	*11-Mar-2015*
Manuscript Number	*AJPP/16.09.14/4181*
Manuscript Title:	*EDUCATION IN PHARMACEUTICAL CARE: A SYSTEMATIC REVIEW*
Corresponding Author:	*Souza Werlissandra Moreira de*
Corresponding Author Email	*werlisouza@yahoo.com.br*
Author(s):	*SOUZA WERLISSANDRA MOREIRA DE Mesquita Alessandra Resende Lyra Jr Divaldo Pereira Silva Wellington Barros da*
Date Accepted:	*11-Mar-2015*

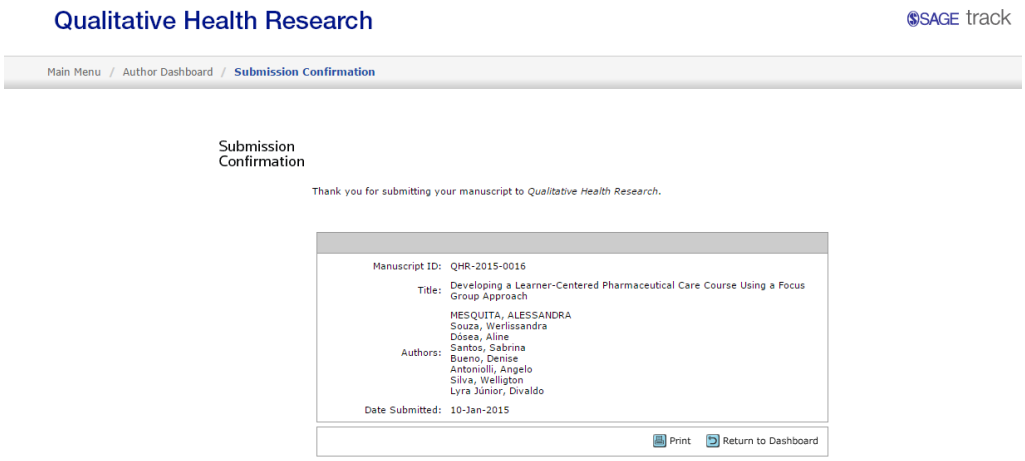
NOTICE

In the event of general queries relating to this document please email your enquiry to the below address

helpdesk@academicjournals.org

Capítulo III: Developing a learner-centered pharmaceutical care course a focus group approach

Qualitative Health Research



Qualitative Health Research

SAGE track

Main Menu / Author Dashboard / **Submission Confirmation**

Submission Confirmation

Thank you for submitting your manuscript to *Qualitative Health Research*.

Manuscript ID:	QHR-2015-0016
Title:	Developing a Learner-Centered Pharmaceutical Care Course Using a Focus Group Approach
Authors:	MESQUITA, ALESSANDRA Souza, Werlissandra Dósea, Aline Santos, Sabrina Bueno, Denise Antoniolli, Angelo Silva, Welligton Lyra Júnior, Divaldo
Date Submitted:	10-Jan-2015

Print Return to Dashboard

8.3. ANEXO III – Regras de publicação

Capítulo I: Assessment of student's perception on the lack of preparedness to the pharmaceutical practice

Journal of Research in Science Teaching

STYLE AND FORMATTING

Manuscripts submitted to JRST should follow the style prescribed by the sixth edition of the publication manual of the American Psychological Association (American Psychological association, 2009), including a page number and an identifying phrase (running head) as per APA style. However, the follow exceptions to APA style are to be observed:

Page Formatting. Manuscripts should be single-spaced (including quotations, footnotes, and references), with primary manuscript text set to 12 point times new roman or equivalent. Manuscript pages should be formatted for North American standard 8.5 × 11 paper or ISO standard A4, with margins of 2.5cm (1 inch) or greater.

JRST generally will not accept manuscripts which exceed the length guidelines (20 single spaced pages, including references). Authors who desire to submit longer manuscripts must include a cover letter detailing how the manuscript describes groundbreaking research that can only be properly presented in a longer format.

Abstract Keywords. Immediately following the abstract, please include search keywords for your manuscript in the following format:

Keywords: assessment, early childhood, chemistry

Reference style. References should follow the APA style, but without any use of italic type. For example, a journal reference would read:

Lederman, N.G., & O'Malley, M. (1990). Students' perceptions of tentativeness in science: development, use, and sources of change. Science Education, 74, 225-239.

File format. The primary manuscript document and text tables should be prepared for submission in microsoft word document (.doc not .docx) or Adobe Acrobat (.pdf) format.

Tables and figures. Tables and figures must be submitted as separate files, one table or figure per file, not embedded in manuscript text. Tables should be submitted in files should have obvious names (eg. "Table 1.doc", Figure 2.tif) and be placed after the main article file in the order that they are called out in the text (see below).

Capítulo II: Education in pharmaceutical care: a systematic review

African Journal of Pharmacy and Pharmacology

Instructions for Authors

Introduction

Authors should read the editorial policy and publication ethics before submitting their manuscripts. Authors should also use the appropriate reporting guidelines in preparing their manuscripts.

Research Ethics

Studies involving human subjects should be conducted according to the World Medical Association (WMA) Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects.

Studies involving non human animals should follow appropriate ethical guidelines such as the Animal Welfare Act, The Animals (Scientific Procedures) Act (Amendment) Order 1993, The EU parliament directive on the protection of animals used for scientific purposes, ARRP policies and guidelines, etc.

Reporting guideline

Responsible reporting of research studies, which includes a complete, transparent, accurate and timely account of what was done and what was found during a research study, is an integral part of good research and publication practice and not an optional extra.

See additional guidelines for reporting of health research.

Preparing your manuscript

The type of article should determine the manuscript structure. However, the general structure for articles should follow the IMRAD structure.

Title

The title phrase should be brief.

List authors' full names (first-name, middle-name, and last-name).

Affiliations of authors (department and institution).

Emails and phone numbers

Abstract

The abstract should be less than 300 words. Abstract may be presented either in unstructured or structured format. The keywords should be less than 10.

Abbreviations

Abbreviation should be used only for non standard and very long terms.

The Introduction

The statement of the problem should be stated in the introduction in a clear and concise manner.

Materials and methods

Materials and methods should be clearly presented to allow the reproduction of the experiments.

Results and discussion

Results and discussion maybe combined into a single section. Results and discussion may also be presented separately if necessary.

Disclosure of conflict of interest

Authors should disclose all financial/relevant interest that may have influenced the study.

Acknowledgments

Acknowledgement of people, funds etc should be brief.

Tables and figures

Tables should be kept to a minimum.

Tables should have a short descriptive title.

The unit of measurement used in a table should be stated.

Tables should be numbered consecutively.

Tables should be organized in Microsoft Word or Excel spreadsheet.

Figures/Graphics should be prepared in GIF, TIFF, JPEG or PowerPoint.

Tables and Figures should be appropriately cited in the manuscript.

References

References should be listed in an alphabetical order at the end of the paper. DOIs, PubMed IDs and links to referenced articles should be stated wherever available.

Examples:

Baumert J, Kunter M, Blum W, Brunner M, Voss T, Jordan A, Klusmann U, Krauss S, Neubrand M, Tsai YM (2010). Teachers` mathematical knowledge, cognitive activation in the classroom, and student progress. Am. Educ. Res. J. 47(1):133-180.

http://dx.doi.org/10.3102/0002831209345157

Christopoulous DK, Tsionas EG (2004). "Finacial Development and Economic Growth: Evidence from Panel Unit Root and Cointegration Tests" J. Dev.Econ. pp.55-74

http://dx.doi.org/10.1016/j.jdeveco.2003.03.002

Goren A, Laufer J, Yativ N, Kuint J, Ben Ackon M, Rubinshtein M, Paret G, Augarten A (2001). Transillumination of the palm for venipuncture in infants. Pediatric. Emerg. Care 17:130-131.

http://dx.doi.org/10.1097/00006565-200104000-00013 PMid:11334094

Mishra A, Mishra SC (2001). Cost-effective diagnostic nasal endoscopy with modified otoscope. J. Laryngol. Otol. 115:648-649.

http://dx.doi.org/10.1258/0022215011908739 PMid:11535147

Capítulo III: Developing a learner-centered pharmaceutical care course a focus group approach

Qualitative Health Research

GENERAL INFORMATION

This section of the Guidelines covers matters of QHR journal style, which are not subject to author preference; adherence is required.

Note: If you still have questions after carefully reading these instructions, please refer to the sample manuscripts (there are several types) beginning on page 35 before contacting the QHR office.

IMPORTANT CONSIDERATIONS

 Qualitative Health Research is a peer-reviewed journal. Only complete, finished manuscripts should be submitted for consideration.

 We do not publish stand-alone abstracts, quantitative studies, manuscript outlines, pilot studies, manuscripts-in-progress, letters of inquiry, or literature reviews. Research articles must be pertinent to health.

 Write both the abstract and the text of your manuscript in first-person, active voice.

 For best results, review this entire document prior to preparing and submitting your manuscript.

 Proper manuscript preparation will speed the peer-review process for your manuscript, and will facilitate a smoother production process if it should be selected for publication.

 Improper manuscript preparation could result in burdensome revisions, lengthy delays in the review and production processes, and the possible rejection of your manuscript.

GENERAL STYLE

We ask authors considering submission to QHR to review these guidelines, survey several issues of the journal, and make their own decision regarding the "fit" of their article for QHR's mission. Please refrain from writing or calling to ask if we are interested in your particular manuscript or idea.

In general, QHR adheres to the requirements of Sage Publications, Inc., and the guidelines contained in the Publication Manual of the American Psychological Association ["APA"], 6th edition (ISBN 10:1-4338-0561-8, softcover; ISBN 10:1-4338-0559-6, hardcover; 10:1-4338-0562, spiral bound), with regard to manuscript preparation and formatting. Elsewhere in these Guidelines this book is referred

to as the APA Publication Manual, or just APA. Additional help may be found online at http://www.apa.org/, or search the Internet for "APA format."

Many universities and private organizations have Web sites devoted to APA style. However, when guidelines found on those sites, or in the APA Publication Manual, conflict with QHR Guidelines, you must follow the QHR Guidelines.

CONFIDENTIALITY AND PROTECTION OF IDENTITY

QHR is committed to protecting the identity and confidentiality of research study participants. With the exception of participatory action research (PAR), no information that could potentially allow identification of a participant—or even a specific study site—should be included in a submitted manuscript or, subsequently, included in a published article.

If the use of participant names is absolutely necessary for reader understanding, each study participant referred to in the manuscript should be assigned a pseudonym. Study sites, such as hospitals, clinics, or other organizations, should not be named, but instead should be described; for example: "Study participants were recruited from the coronary care unit of a large metropolitan hospital on the eastern seaboard of the United States." Authors who include participant names and/or photos/images in which individuals are identifiable must submit written permission from the participants to do so—no exceptions. Permission to use photographs should contain the following verbiage: "Permission is granted to use, reproduce, and distribute the likeness/photograph(s) in all media (print and electronic) throughout the world in all languages."

COMMON PROBLEMS

Capitalization Capitalize proper names. Do not capitalize words unnecessarily, such as titles and ranks (e.g., director, professor, doctor, chairperson), or themes, categories, concepts, and so forth. (See also Title Case, below)

Ellipses Ellipses (. . .) are to be used only to represent words missing from quotations. Do not use them to represent pauses in speech.

Hyphenation Refer to the APA Publication Manual, 6th edition, for an excellent explanation of the proper use of hyphens and dashes; do not depend on Word's "Spell Checker" feature for decisions on hyphenation. With few exceptions (see APA), words beginning with co, non, pre, post, re, semi, socio, and sub do not require hyphenation.

Horizontal lines Do not place horizontal lines in your manuscript. If footnote separator lines appear, remove them.

Inconsistent writing style When reviewing your manuscript prior to submission, watch for inconsistent writing style. This is especially important for manuscripts having two or more authors.

Irrelevant data Page space in the journal is precious. Refrain from including

Jargon - QHR readers come from a wide variety of disciplines and backgrounds, and therefore might not be familiar with the terminology related to your particular field or discipline. If you must include jargon, be sure to explain it clearly the first time a discipline-specific word is used. Avoid the overuse of jargon. 11

Non-English words The first time a non-English word is used, italicize it. Thereafter, use only Roman font. All non-English words must be explained or defined in the text. Include English translations of all non-English titles in the reference list (refer to APA for instruction on how to do this).

Paragraph length To facilitate ease of reading, paragraphs should be no longer than one half of a double-spaced, 8.5 x 11-inch page. Avoid paragraphs of only two or three sentences in length; combine them as necessary to make paragraphs of more appropriate length.

Participant characteristics Under no circumstances should you include individual participant characteristics in your manuscript. Group participant characteristics. In most cases it is best to write group characteristics into the text rather than placing them in a table (use whichever format takes the least amount of page space).
Repetition Avoid it! Make your writing as "tight," precise, and concise as possible.
Avoid including the same facts, conclusions, or information in multiple places in the text (this does not mean you cannot summarize, of course). Avoid overuse of the same phrases, and avoid repeating certain characteristics of your sample.
Run-on sentences Avoid long, wordy, complex sentences.
Spacing - Use no spaces before, and only a single space after periods (.), commas (,), colons (:), semicolons (;), question marks (?), and closing quotation marks (”). All line spacing (except for text within figures) should be set at exactly double, with 0” before and 0” after.
Special formatting - Never use any coding or formatting in your manuscript that is not called for in these Guidelines.
Spelling QHR is published in U.S. English. For best results, set the language of your document to U.S. English when you are establishing all other document setup requirements. Note the correct spelling of a few commonly misspelled words: health care (two words); keywords (one word); semistructured (one word, no hyphen). Also, refer to the section on hyphenation, above. QHR uses Merriam-Webster's Collegiate Dictionary (2005) as our spelling reference.
Title Case - Title case is properly created by capitalizing:
 the first letter of the first word
 the first letter of the first word after a colon (:), period (.), or em dash (—)
 all important words, and
 all words containing four or more letters

BASIC DOCUMENT PREPARATION

Note: Do not use any coding or formatting that is not described within these Guidelines!
DOCUMENT SETUP AND FORMATTING
Document file type Submit only documents created in Microsoft Word, and only with the regular file extension of .doc or .docx (do not submit documents with .docm, .rtf, .pdf or other extensions).
Paper size Letter, 8.5 x 11 inches, with portrait orientation
Margins 1 inch (1”; approximately 2.5 cm.) on all sides
Line numbers None
Line spacing Exactly “double,” with 0” before and 0” after
ORDER OF MANUSCRIPT ELEMENTS
Compile the elements of your manuscript in the following order:
Document 1: Title page (required)
Document 2: Abstract and keywords (required); Main manuscript text (required); Notes (if any); References (required); Appendices (if any); Tables (if any)
Document 3: Figure 1 (if any)

Document 4: Figure 2 (if any; and so forth, with each subsequent figure in a separate document)

FORMATTING OF MANUSCRIPT ELEMENTS

Note: For ease in locating needed information, the various elements are listed below in alphabetical order, and not in the order of anticipated use.
Dialogue: Presentation of participant dialogue (i.e., two or more "speakers") should be set as block quotes/excerpts, indented by ½ inch (approximately 1.3 cm.) from the left margin. Do not use bullets or hanging paragraphs. Begin the narrative of each speaker on a new line. The first time a speaker name is used, type it in full, followed by an appropriate abbreviation in parentheses prior to the colon; thereafter, use only the abbreviation for the speaker name. Refer to the sample manuscripts for an example of dialogue presentation.

Ellipses/ellipsis: Almost every manuscript contains ellipses. They are used to indicate words missing from quotations, and are to be created in a very specific manner. The proper way to create ellipsis points is as follows:
Three (3) dots, preceded, divided, and followed by spaces (i.e., SPACE.SPACE.SPACE.SPACE), like this. . . .
If it is necessary to indicate missing words between sentences (instead of in midsentence): Place a period (full stop) at the end of the first sentence, then format the ellipsis points as noted, and begin the next sentence (with a capital letter) immediately after the last space (i.e., .SPACE.SPACE.SPACE.SPACE). . . . Like this.

Font size: text Use 12-point font for everything except text in tables, figures, and (if applicable) conversation analysis.
Font size: tables and figures: Use only 8-point font in tables and figures.
Font style: headings, title page, abstract, keywords, tables, and figures
Use Gill Sans font style for all of these. This includes figure/table numbers, titles, text within the figures/tables, and citations or explanatory notes below the figures/ tables (if any). Note: If you do not have Gill Sans font on your computer, please use Arial instead.
Font style: main manuscript
Use Times New Roman font for the main body text. Also, use Times New Roman font for the text (not the headings) of author's notes, acknowledgments, declarations of conflicting interests, funding statements, footnotes, and bios.
Italics should be used only
 as appropriate in the reference list (see APA);
 as appropriate in level-2, -3, and -4 headings; and
 to introduce non-English words, or unusual new concepts (2 to 3 words), and then only when the new word or concept is first introduced in the manuscript; subsequent use of the same word(s) should be in regular Roman font.

Headings

All headings, without exception, are to be set in Gill Sans, 12-point font. (Use Arial if you do not have Gill Sans on your computer.)
Justification of margins: All text should be left justified.
Length of manuscript
There is no predetermined word or page limit. Provided they are "tight" and concise, without unnecessary repetition and/or irrelevant data, manuscripts should be as long as they need to be.
The editor might require a reduction in length if the manuscript contains material that does not add anything useful to the topic being discussed. Limits might be imposed on the number/size/length of tables, figures, reference lists, and appendices.

Line spacing
Everything, in all elements of the manuscript, from the title page through the references and tables (if any), must be exactly double spaced. The only exception: Text within a figure should be single spaced.
Lists Vertical lists (i.e., listed down the length of the page) should be either simple dot bullets or bullets numbered 1., 2., 3., and so forth. Leave a blank, double-spaced line after all lists.

Paragraphs
Paragraphs are to flow, one after the other, without additional line breaks (with few exceptions; see below), and with no extra space between paragraphs.
Leave a blank (double-spaced) line between the abstract and the keywords.
Leave a blank line after (not before) each block quote, numbered list, or bulleted list.
Leave a blank line between block quotes if you have placed two or more in succession.
Indent the first line of every new paragraph by ½ (.5) inch (approximately 1.3 cm.), except:
 the first line of the abstract or the keywords.
 the first (opening) paragraph of the manuscript text.
 paragraphs immediately after level-1 and level-2 headings.
 paragraphs beginning with level-3 headings.
Use Word's Format > Paragraph function to set paragraph first-line indentations, but apply this paragraph by paragraph, and not to the entire document.
Use Word's Format > Paragraph function to set block quote/excerpt and bulleted/numbered list indentations. Note that block quotes/excerpts and lists are to be completely indented (not just the first line) by .5 inches (approximately 1.3 cm.) from the left margin only; do not indent from the right side.

Quotation marks
In general, use double quotation marks (e.g., "Xxxx.") to set off quotations appearing within regular paragraphs, and to set off words being used with "special" meaning (or unusual spelling to convey special meanings within the text; e.g., "busy-ness"). Do not use quotation marks around quotations presented as block quotes/excerpts.
In regular paragraphs, use single quotation marks to set off a quote within a quote (e.g., "Xxx, 'Yyy,' xxxx.").

Note that when closing quotation marks coincide with a comma or period (full stop), the quotation marks go outside (after) the comma or period: “Quotation. . . last word.”

Quotations

Quotations of fewer than 40 words should be surrounded by double quotation marks (“) and included within the regular sentences of a paragraph. Internal quotations within quotations of fewer than 40 words should be set apart with single quotation marks (‘).

Quotations of 40 or more words should be set as separate paragraphs, with the entire quotation indented .5 inches (approximately 1.3 cm.) from the left margin (this is also referred to as a “block quote” or “excerpt”). Do not use quotation marks for block quotes unless there is a separate, internal quotation within the larger quotation; in that case, use double quotation marks (“) for the internal quotation only. Make sure all quotations are properly capitalized and punctuated.

Format the indentation for block quotes with Word’s Format > Paragraph feature.

See the special section, below, for instructions on formatting conversation analysis.

Seriation

Seriation refers to “numbered” lists appearing in sentences of regular text (in other words, across the page rather than in a vertical list). The proper seriation style for manuscripts submitted to QHR is (a), (b), (c), and so forth (lowercase letters, enclosed in parentheses).

WHAT YOU SHOULD NOT DO

Conversation analysis

 Do not include a list of the transcription conventions in the manuscript if more than symbols have been used. 16

Ellipses

 Do not use the “Insert > Symbol” function in Word to enter ellipses.

 Do not use ellipses to indicate pauses in speech.

 Do not place ellipses within parentheses (. . .) or brackets [. . .]; the only exception to this is in conversation analysis, as appropriate for the conventions used.

Emphasis

 Do not use italics, bolding, underlining, or ALL CAPITAL LETTERS for emphasis.

 Do not use italics for quotations (long or short).

 Do not use bolding except for level-1 headings, as appropriate (see below).

General formatting

 Do not add any special formatting to the document, such as increased line space before and/or after headings.

Headings

 Do not follow APA guidelines for headings; format your headings only as described in these QHR Guidelines.

 Do not use any headings (such as Introduction or Background) at the beginning of the manuscript.

Line spacing

 Do not create double spacing with hard returns (by striking the “enter” key twice).
 Do not leave blank lines between paragraphs (with the exceptions of after block quotes/excerpts, bulleted or numbered lists, or sections of conversation analysis; see below).

Margins and indentations

 Do not use full justification for any portion of your manuscript. The text at the righthand margin should be uneven (irregular).
 Do not make indentations using tabs, or by using two, .25” indentations to achieve a .5-inch (approximately 1.3 cm.) indentation.
 Do not change margins to create indentations.
 Do not change the margins for block quotes (margins should remain at 1”, or approximately 2.5 cm., on all sides).

Quotations Do not use any quotation marks for block quotes unless there is a separate, shorter quote contained within the larger quote; in such a case, use double quotation marks (e.g., Xxxxxx, “Yyyy,” xxxxx.) only for the “inner” quote.

Seriation

 Do not use numbers of any type for in-text seriation; use only (a), (b), (c), and so forth.

“REVIEW” YOUR MANUSCRIPT

One common reason for “revise” decisions is that authors are sometimes so immersed in their data and findings that they lose track of

 whether the information presented contributes new knowledge
 whether the appropriate method and design have been used
 whether ethical standards have been met
 whether the information is presented in a complete, concise, and logical manner, with attention to writing style, and
 what the reader needs/wants to know (remember that QHR readers have expertise in diverse areas, and therefore many will not be familiar with concepts and terminology common to your research area)

Before submission, we recommend an informal peer review of your article, using the criteria shown on page 55.

PRIOR TO SUBMISSION

 Make sure your entire manuscript is prepared in accordance with these Guidelines in every respect.
 Have your manuscript professionally edited by an expert in the English language. This is especially important if English is not your first language. Remember to inform your editor of the need to use U.S.-English spelling, and provide him or her with a copy of these Guidelines.
 Proofread your manuscript aloud; doing so will help you identify awkward phrasing, run-on sentences, incomplete sentences, improper punctuation, missing text, and much more. We recommend that the corresponding author and all coauthors proofread the entire manuscript (including abstract and references) from a paper copy rather than a computer screen.

Keywords

Your keywords are words related to the article topics that readers or researchers could search on to find your published article. They are also used to assist QHR in selecting appropriate reviewers for your manuscript during the review process.
Keywords should follow on the same page as the abstract. Leave a blank, double-spaced line between the abstract and the keywords (see the sample manuscripts beginning on page 35).
Include keywords selected only from the QHR Keyword List, below. List them exactly as they are shown in the keyword list, in lowercase letters (except for proper names), horizontally across the page, in the order in which they appear on the keyword list. Try to select at least five keywords. Use the most specific keywords possible from the list provided.
Individual keywords should be separated by semicolons; note that some keywords are actually two or more words, and might include commas. Do not capitalize the first keyword unless it is a proper name (i.e., Africa), and do not add a period (full stop) at the end of the keywords.
You may request that new keywords be added to the list, but the words should be general in nature, and not specific to a narrow topic. New keywords will be added at the editor's discretion.

MANUSCRIPT PREPARATION - ELEMENTS OF A MANUSCRIPT
Note: Some instructions differ for accepted manuscripts; please refer to page 28.
The following elements are required for each manuscript, and should be compiled in the following order:
Title page: Submit the title page as a separate document.
Abstract The abstract is placed on page 1 of the main document.
Keywords Place the keywords below the abstract, on the same page. Leave a (double-spaced) blank line between the abstract and the keywords.
Main manuscript The main text of the manuscript begins on page 2 of the main document.
References
References begin on a new page, after the end of the manuscript text, or after the notes, if any (do not submit references in a separate document).
The following elements are optional, and may be included in your submission:
Notes
Place notes (also known as endnotes) after the main text, before the first
page of references.
Tables
Place tables, one per page, at the end of the main manuscript document, after the references (do not submit tables as separate documents).
Figures
Submit each figure in a separate document, in order, by number.
Appendices
Appendices are published only at the editor's discretion. Place any
appendices after the reference list, and before any tables (place them
before the bios in accepted manuscripts).
A maximum of four (4) types of documents should be submitted: (a) title page; (b) main manuscript; (c) figures (if any); and (d) permissions (if needed). Despite what the online submission system (ScholarOne Manuscripts / SageTrack) might allow, do not submit such

elements as abstracts, references, and tables in separate documents. Be sure to refer to the sample manuscripts, beginning on page 35.

TITLE PAGE

The title "page" may be longer than one page. To maintain author anonymity during peer review, it is submitted as a separate document. Title page information should not be included in the main manuscript document. Do not format a running header. The title page should include the following, in this order:

Article title A title should convey, as clearly and succinctly as possible, the main idea, focus, or content of a manuscript. It should be clear in meaning even when standing alone.

Make your title 10 to 12 words (or fewer) in length; avoid long, "wordy" titles.

Avoid titles with colons or quotations unless they are necessary to convey an important concept or idea in the article.

Type your title in Title Case; this means you should:

* capitalize the (first letter of) the first word
* capitalize all important words
* capitalize all words that have four (4) or more letters
* capitalize the first word after a colon (:), period (.), or em dash (—)

Author names List the name (not just initials) of each author, without credentials, in order, horizontally across the page.

If there are two authors, list them as follows: Janice M. Morse and Author Two

If there are three or more authors, list them as follows: Janice M. Morse, Author N. Two, Writer Three, and Fourth Author (and so forth)

After each name (or after the comma following a name, if applicable), use a superscript number to link that particular author with his or her primary affiliation (see the section on author affiliations, below).

Author affiliations Using the same superscript numbers as used with the authors' names (see above), list only the primary affiliation of each author, not multiple affiliations (see the sample manuscripts).

Spell out all city, state, and country names (exception: use USA instead of United States). Spell out any organization or institution names (for example, University of Utah instead of U of UT, or World Health Organization instead of WHO).

Corresponding author information

Use only the following format for the corresponding author information, and do not include any information that is not listed below. List information only for the individual who should be contacted by readers after (if) the article is published.

Note that this should be a complete mailing/postal address. Example: Janice M. Morse, University of Utah College of Nursing, 10 S. 2000 E., Salt Lake City, UT 84112-5880, USA Email: QHR-Editor@nurs.utah.edu

Author's / Authors' Note

This is optional. This is the place to mention, perhaps, that portions of the article were presented at a professional meeting, or other information of that sort.

Acknowledgments

This is optional. The section is limited to two (2) or three (3) brief sentences.

Overlong acknowledgments will be reduced at the copyeditor's discretion. Do not include long descriptions of persons being acknowledged, and do not include roles, titles, or credentials.

Avoid phrases such as We wish to thank, We would like to thank, and We want to thank; just use a simple, We thank, or We acknowledge.

Declaration of conflicting interests

You must use one of the following statements, in the exact words shown below.

If you have no conflicts of interest (or potential conflicts of interest):

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

If you have conflicts of interest:

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: [Then, in sentence form, list all specific author relationships with organizations and/or products that were declared].

Funding

You must use one of the following statements, in the exact words shown below.

If you did not have financial support:

The author(s) received no financial support for the research, authorship, and/or publication of this article.

If you did have financial support:

The author(s) disclosed receipt of the following financial support for the research, authorship, and or publication of this article: [Then list, in sentence form, all entities/organizations that funded the research and/or authorship].

Bios

Bios are simple and concise, 1-sentence statements about each author. Long bios will be reduced by the copyeditor. In this space you may include department or division names, and secondary affiliations (if any). Use only the format shown below for your bios. Note that primary credentials (the most important only, with a limit of three per person; QHR does not publish long credential strings) and current positions (or affiliations or professional pursuits) are required.

Janice M. Morse, PhD, FAAN, is a professor and presidential endowed chair at the University of Utah College of Nursing in Salt Lake City, Utah, USA. [Template: Name, bolded, credentials, role or title, affiliation (here you may include department, school, division, and so forth), city, state or province (if any), country.]

ABSTRACT AND KEYWORDS

The abstract should be placed at the top of page 1 of the main manuscript document. It should be a single paragraph, no more than 150 words in length, and briefly describe your article. It should not contain headings or citations, and should not be divided into sections. Place your keywords below the abstract, on the same page (see "Keywords," above).

Double space the entire abstract page (including the keywords). Briefly state the purpose of your research, the main findings, and your primary conclusions. Make sure the abstract is written in the first-person, active voice.

MAIN MANUSCRIPT

The main text of the manuscript begins at the top of page 2 of the document, immediately after the abstract page. Write your article in the first-person, active voice.

The main text of the manuscript should be broken into appropriate sections by the use of section headings. Sections should flow in a logical sequence, and include, at a minimum, Methods, Results, and Discussion (these are all level-1 headings); other level-1 headings and subheadings may be used at the author's discretion. The author may choose to use different names for the three main sections, but the basic content should be that which would appropriately fall under the headings of Methods, Results, and Discussion.

There are very specific requirements for the preparation of in-text citations; refer to the APA Publication Manual, 6th edition, for details. Every in-text citation should have a corresponding reference in the reference list—no exceptions.

During the review process, author citations should include only the word Author and the year: (Author, 2008). If and when the manuscript is accepted for publication, the missing information can be restored.

Double space the entire manuscript document, except for text contained in figures. Use only U.S.- English spelling (except in the references, as appropriate, and for direct quotations from published written sources). Use U.S.-English translations of non-English quotations or excerpts. Use a minimum of two (2) heading levels.

Attend to copyright regulations and permission requirements (required). Submit, at the time of manuscript submission, written permission for the use of any names, photographs, or copyrighted tables, figures, and/or text; written permission must come from the person(s) depicted in the photographs, or in the case of copyrighted work, from the copyright holder (which is not necessarily the author or the journal in which it is published; see page 7).

REFERENCES

Note: Proper formatting of the reference list is the responsibility of the author, NOT journal personnel. The reference list (also known as a bibliography) should include complete references for the sources used in the preparation of your manuscript. Every reference must be cited in the text. The reference list should begin on a separate page (not in a separate document) following the last page of manuscript text (or after the notes, if any). Each type of reference (journal article, book, chapter in edited book, newspaper, online reference, and so forth) must be formatted in accordance with the precise guidelines contained in APA, 6th edition.

Elements such as listing order, spelling, punctuation, spacing, capitalization, and the use of italics or Roman (regular) font are as important as the content of the reference. Note that if an author has two or more initials, there should be spaces between the initials; incorrect = X.Y.Z.; correct = X. Y. Z.

References should be listed in hanging paragraph format (with indentations at ½ inch or 1.3 cm.), in alphabetical order by the last name of the first author; additional considerations might apply (see APA). The hanging paragraphs should be created by using Word's Format > Paragraph feature.

During the review process, author references in the reference list should include only the word "Author" and the year: Author. (2008). To prevent author identification during the review

process, do not include the article title, journal name, or any other part of the reference. Do not place these references in alphabetical order in the reference list; place them at the very beginning or very end of the list. If and when the manuscript is accepted for publication, the missing information can be restored and properly placed.

Avoid the use of unnecessary references and lengthy reference lists. Extensive bibliographies will not be published; articles should include only the "essential" or key references. If the author wishes to offer a secondary reference list (for example, references used in meta-analysis), it should be so stated in a note, and made available to readers by contacting the author directly. Do not include such a list in the manuscript document, but it may be submitted separately for purposes of review.

Use only the 6th edition of the Publication Manual of the American Psychological Association (APA) as your source of instruction for references (this is critically important). Translate non-English titles into English (see APA for instruction on how to do this). Reference and cite all other studies mentioned in the article. Test all Internet URLs (Web addresses) immediately before submission to ensure that they are accurate, and that the sites are still accessible; do this prior to submission of all
revisions and accepted manuscripts, as well.

GENERAL MANUSCRIPT PREPARATION

Refer to the instructions contained in the QHR Manuscript Guidelines. Review the section addressing QHR style, beginning on page 8.

AVOID COMMON PROBLEMS:

 Refer to your article as an article, not as a paper or a study.

 Avoid anthropomorphism. Neither your study nor your article conducted the research: you did. Neither your study nor your article considered, chose, utilized, explored, selected, or took any other type of action: you did.

CHECKLIST:

 Consistently use the first-person, active voice in your writing.

 Be accurate and consistent with verb tense: things that happened, were written, or were said in the past should be written about in the past tense.

 Submit the title page as a separate document.

 Obtain (and submit) any needed permissions for use of copyrighted work and/or for the use of photographs/images.

 Obtain an informal peer review of your manuscript prior to submission (see the review criteria on page 55).

 Have your manuscript professionally edited prior to submission. If English is not your first language, make certain your editor is an expert in the English language.

QUOTATIONS

Read the instructions regarding quotations on page 14 of the QHR Manuscript Guidelines.

AVOID COMMON PROBLEMS:

 Participant identifiers and/or codes included with quotations pose a potential threat to participant confidentiality; do not use them. Even pseudonyms should be used with caution, especially if it is possible for the reader to "track" multiple comments presented from a particular participant.
 Ellipses/ellipsis points (. . .) are to be used only to represent deleted words or phrases, and not pauses in speech.

CHECKLIST:
 Set quotations of fewer than 40 words within regular sentences. Set quotations of 40 or more words as block quotes. (Use Word's "Word Count" feature.)
 Indent block quotes by ½ inch (approximately 1.3 cm.) from the left margin only. (Use Word's "Format > Paragraph" feature to create the indentation.)
 Type your quotations in 12-point Times New Roman font, double spaced. Do not use italics.
 Cite and reference all quotations taken from sources other than research participants, and include page numbers in the citations.
 If you add words of explanation or comment within quotations, place those words in [brackets] rather than (parentheses).
 Properly capitalize and punctuate all participant quotations.

REFERENCES & CITATIONS

See page 24 in the QHR Manuscript Guidelines. Follow the sixth edition of the APA Publication Manual.

AVOID COMMON PROBLEMS:
 APA has stipulated a particular format for each specific reference type; be sure to use the correct format. Note that not all types of periodicals are referenced in the same manner as journal articles.
 References and citations should be prepared with exactness and attention to detail. The order of listing, spelling, punctuation, spacing, capitalization, and use of italic or Roman font are all important.

CHECKLIST:
 Spell out all journal names, and provide complete page numbers (e.g., 172-185 rather than 172-85).
 "Blind" your personal (author) references and citations as noted in the Guidelines.
 Double check the spelling of all reference author names, and ensure that both spelling and years of publication are consistent between the reference list and the in-text citations.
 Provide English translations for all non-English titles (retain the original titles). 27
 Format your references in hanging-paragraph style and double line spacing. Indent the "hanging" text by ½ inch (approximately 1.3 cm.), using Word's "Format > Paragraph" feature.

TABLES

GOAL: To organize and present relevant data that would be too cumbersome or complex to write into the text. Our standard is space. If your material can be more efficiently presented as text, do not make a table. A table must not duplicate material already appearing in the text.

Read the instructions for table preparation on page 29 of the QHR Manuscript Guidelines. Place each table on a separate page at the end of your manuscript document.

AVOID COMMON PROBLEMS:

 The typesetting process removes all bullets from tables (whether numerals, letters, or dingbats); do not use them.

 The use of underlining, all uppercase (capital) letters, and italics can make a table look busy and cluttered, and can obscure important data. Use these features sparingly or not at all. Use bold font sparingly.

CHECKLIST:

 To maintain anonymity, present participant characteristics in aggregate (group) form, and refrain from listing individual participant characteristics.

 Make sure your table has a minimum of two (2) columns, a minimum of two (2) rows, and a clear and concise heading for every column. Double space the table.

 Create your table in “portrait” orientation on the page, within the regular 1-(approximately 2.5 cm.) margins of the document.

 Give your table a clear, descriptive, and concise title.

 Place individual data items or grouped data in separate rows of the table, rather than placing multiple items in a single row.