

GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 7-8 (376-377) Июль-Август 2026

ТБИЛИСИ - NEW YORK



ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press.
Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებში.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman (Кириллица)**, для текста на грузинском языке следует использовать **AcadNusx**. Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи.** Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - <http://www.spinesurgery.ru/files/publish.pdf> и http://www.nlm.nih.gov/bsd/uniform_requirements.html. В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректуре авторам не высылаются, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - **Times New Roman (Cyrillic)**, print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

**Articles that Fail to Meet the Aforementioned
Requirements are not Assigned to be Reviewed.**

ავტორთა საყურადღებო!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე, დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx**. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

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

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

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

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

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

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

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

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

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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EXPLORING THE SATISFACTION OF NEWLY HIRED NURSES USING AN EVIDENCE-BASED, PERSONALIZED ONBOARDING PROGRAM: A CROSS-SECTIONAL ANALYSIS

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Abstract.

Purpose: To examine the satisfaction of newly hired nurses with an evidence-based, 90-day onboarding program, and to explore how satisfaction relates to factors that may bear on future workforce retention.

Methods: We conducted a cross-sectional assessment of newly hired nurses at the Qassim University Medical Center (QUMC) across 2023. Nurses were subjected to a 90-day onboarding program, comprised of three distinct stages. Participants' satisfaction was measured using a literature validated questionnaire. Differences in satisfaction across nurses' sociodemographic characteristics were analyzed using SPSS version 28. A p-value <0.05 was considered statistically significant.

Results: A total of 109 newly hired nurses were included in the final analysis. Overall, participants reported high overall satisfaction with the program (8.18 ± 1.72). Participants' self-perceptions of the program's effectiveness in building communication skills ($r: 0.483$), elucidating policies and regulations ($r: 0.484$), and improving the understanding of interdepartmental responsibilities ($r: 0.497$) were the strongest factors associated with increased overall satisfaction. Self-perceived satisfaction scores across the questionnaire's 30 items were statistically indifferent between genders of nurses. Among different departments, nurses in the ER had relatively the lowest overall satisfaction. Similarly, nurses of Arab origin demonstrated lower satisfaction compared to their non-Arab counterparts.

Conclusion: An evidence-based 90-day onboarding program was associated with a high sense of fitness and belonging among newly hired nurses. Moreover, the findings shed light on the transitional shock experienced when nurses start their practical careers after graduation. As this was a cross-sectional study, these associations should not be interpreted as causal, and it remains unclear whether high rates of satisfaction will translate into higher employee retention in the long term.

Key words. Nurses, onboarding, job satisfaction, workforce transition, Qassim.

Introduction.

Nurses comprise a large and significant portion of any healthcare workforce and are critical to the effective and efficient delivery of healthcare [1]. The nursing profession is facing a number of challenges including high staff turnover, shortage of qualified personnel, and adaptation difficulties among younger nurses [2,3]. These challenges are exacerbated by the intense mental and physical burden associated with the profession, often manifesting as anxiety, isolation, and reduced self-confidence [4-6]. The inability of nurses to transition across different roles

or environments adversely affects role identity, provider self-efficacy, professional development, and most importantly, the stability, quality, and safety of provided clinical care [6,7].

Among the many factors affecting nurses' turnover rate, successful onboarding (or lack thereof) is critical in the sustainability of the nursing workforce [8]. In fact, hiring and retaining a stable workforce of considerable quality is linked to improved patient-health outcomes [1,9]. The purpose of onboarding is to facilitate the integration of new hires through structured processes which serve to increase familiarity with pre-existing systems, improve team dynamics, reduce the learning curve, improve cohesion, and ultimately, ensure optimal patient care. Onboarding is considered a series of events that can last anywhere between a few months and a year, depending on the needs of the newly hired taskforce [3]. Documented benefits of such practices include higher self-perceived value, retention rate, increased engagement, and improved productivity [10,11]. Most importantly, successful onboarding practices instill loyalty and investment among hires.

On the other hand, dysfunctional onboarding could lead to poor job satisfaction, increased anxiety, and reduced confidence; all of which could either contribute to increased turnover or the abandonment of the profession [12]. Unfortunately, poor onboarding could be precipitated by several factors including but not limited to lack of standardization, inconsistent onboarding tools, lack of evidence-based tools to identify gaps or effectiveness of current process, and context-insensitive teaching [6,13]. Furthermore, organizations should focus on their needs while also accounting for the deficiencies of the available workforce across the hiring period. For example, Valdes et al. calls for the inclusion of critical thinking assessments into onboarding and orientation programs due to the lack of critical competency among newly graduated nurses observed within the literature [14].

Within the Middle East and North Africa (MENA) region, studies investigating the onboarding of healthcare workers are scarce, let alone those of nurses. In fact, the greater majority of these limited reports investigate the institutional and cultural hurdles to successful integration into MENA healthcare systems by Western practitioners [15,16]. Therefore, this study aims to report on the onboarding experiences of nurses across a MENA nation. Moreover, it examines the relationship between onboarding, satisfaction, and retention.

Materials and Methods.

This cross-sectional investigation was conducted between January and December of 2023. It included all newly hired nurses at the Qassim University Medical Center (QUMC). Senior nurses with at least one year of experience, junior nurses

that missed more than 50% of the onboarding interventions, and those not consenting to participating were excluded from the study.

QUMC is an academic, tertiary hospital.

Design and development of the onboarding program:

The QUMC onboarding program is an evidence-based framework for the hiring, acclimation, education, and integration of new nursing hires. The program was developed through both expert input and effective guidelines from the literature [17-21]. The onboarding program is conducted across 90 days with three distinct assessments at 30 days, 60 days, and 90 days.

During each assessment, head nurses conduct one-on-one structured interviews. The purpose of these interviews is to document new hires' reflections on the program, their relationships with peers and mentors, their perceptions of self-performance, future prospects, and to measure their understanding of the program's core values and mission statement. New hires are also encouraged to share their opinions regarding what could be improved within their skillsets and/or the program.

During phase I (Day 0 to Day 30), the onboarding program serves to socially integrate the new hires within the QUMC system. Hires are provided with an experienced mentor, attend meetings with both peers and supervisors, conduct minimal tasks at their workstations, and observe team dynamics in action. During phase II (Day 30 to Day 60), new hires are expected to engage in a multitude of training courses, skill education, and competency evaluations. Training is role-based and context sensitive to the requirements of their future post. At this phase, new hires are expected to be able to confidently engage with the QUMC systems.

Phase III (Day 60 to Day 90) is when new hires are expected to show progress in their skillsets, mending gaps within their existing core competencies, and ultimately, achieving independence. Across all three phases, success is measured through three standardized metrics: number of completed assignments, number of completed training courses, number of attended 1-to-1 meetings with either team members or supervisors.

Across the 90-day onboarding program, new hires were instructed to document their progress using the professional practice and development portfolio. Documentation included team members, learning assessment needs, number of engaged core competencies, professional goals, and quality improvement initiatives among others. Establishment of successful learning and workplace integration are validated by experienced preceptors using standardized checklists.

Data collection tool:

To measure satisfaction, we utilized the Satisfaction to Onboarding Program for Nurses (SOPN) tool, a literature-derived questionnaire developed to capture new hires' perceptions across the domains of the onboarding process. To our knowledge, this is the first application of the SOPN tool within a Saudi Arabian, and broader MENA, nursing context; its psychometric properties have not been separately validated in this population, and this represents a limitation that is addressed further below. Within our sample, the tool demonstrated excellent

internal consistency across its 30 items ($\alpha = 0.82$) and moderate test-retest agreement ($ICC = 0.64$). All questionnaire items were answered on a 5-point Likert scale (i.e., strongly disagree, disagree, neutral, agree, strongly agree). We also collected a number of sociodemographic variables including age, native language, biological sex, nationality, and department/unit.

Statistical analysis:

All data were cleaned, organized, and analyzed using SPSS version 28 (IBM Corp., Armonk, NY, USA). Categorical variables were expressed as frequencies with associated percentages, while continuous variables were expressed as means $\pm$ standard deviations. Associations between categorical variables were examined using the chi-squared test. Mean differences in satisfaction score across different demographics were tested using the independent sample t-test for binary grouping and one-way ANOVA for categorical variables with 3+ groups. Correlations between two continuous variables were tested using Pearson's r coefficient. A p -value of less than 0.05 was considered statistically significant for all conducted analyses.

Results.

A total of 109 newly hired nurses were included in the final analysis. The majority of participants were females (92.5%), spoke English as their primary language (93.6%), and were non-Arab (83.9%). Participants' characteristics are presented in (Table 1).

Across the entire SOPN tool, participants generally agreed with every statement; thus, indicating high satisfaction with the onboarding process (Table 2). The most positively received statement pertained to how the program helped in illustrating the importance of teamwork and collaboration in healthcare (4.35 ± 0.52). This is followed by statements pertaining to how the program enables building therapeutic relationships with colleagues (4.34 ± 0.51), facilitates training (4.34 ± 0.49), and maintains relevance to hire (4.34 ± 0.53).

On the other hand, the least 'relatively' agreed with statements pertaining to the program's ability to guide new hires towards appropriate mentors (4.17 ± 0.58), and its relevance to making effective communication with patients and their families (4.17 ± 0.55). Similarly, the program's usefulness in terms of networking with other colleagues (4.22 ± 0.51) and providing simulated, hands-on experience (4.23 ± 0.52) were also contested. Nonetheless, the perceptions were generally positive even across these statements.

When asked about overall satisfaction by the onboarding process, the mean satisfaction score was 8.18 ± 1.72 . On correlation analysis, statements pertaining to the program's effectiveness in building communication skills ($r: 0.483$; $p < 0.05$), elucidating policies and regulations ($r: 0.484$; $p < 0.05$), and improving the understanding of interdepartmental responsibilities ($r: 0.497$; $p < 0.05$) were the strongest factors associated with increased overall satisfaction. Conversely, the program's usefulness in terms of raising job self-efficacy ($r: 0.369$; $p < 0.05$), providing adequate guidance on mentorship ($r: 0.365$; $p < 0.05$), and integrating new hires into their new physical areas and relevant guidelines ($r: 0.318$; $p < 0.05$) were the least strong indicators. Nonetheless, all statements were

Table 1. Characteristics of included participants.

Variable	Category	N	%
Language	Arabic	7	6.4
	English	102	93.6
	Total	109	100.0
Gender	Male	8	7.5
	Female	98	92.5
	Total	106	100.0
Nationality	Saudi	7	6.6
	Egyptian	8	7.5
	Filipino	41	38.7
	Indian	45	42.5
	Indonesian	2	1.9
	Jordanian	2	1.9
	Nigerian	1	0.9
	Total	106	100
Unit	Cath lab	4	3.8
	CSSD	1	0.9
	Day Surgery unit	4	3.7
	Endoscopy	2	1.8
	General Surgery ward	11	10.4
	ICU	5	4.7
	Interventional Radiology	6	5.7
	NICU	10	9.4
	Nursing Services	1	.9
	OB Clinic	4	3.8
	OB Ward	27	25.5
	OR	5	4.7
	Outpatient	21	19.8
	PACU	1	.9
	Surgical Clinic	4	3.8
	Total	106	100.0

Table 2. Responses to the satisfaction questionnaire.

No.	Statement	N	Mean	SD
1.	The objectives of the onboarding program were clearly communicated.	109	4.33	0.562
2.	The content covered in the onboarding program was relevant to my role.	109	4.34	0.513
3.	The strategies used in the onboarding program were effective in facilitating learning.	109	4.34	0.495
4.	The evaluation methods used during the program were appropriate for assessing my learning.	109	4.31	0.522
5.	The expected outcomes of the onboarding program were achieved.	109	4.24	0.507
6.	I feel better equipped to establish therapeutic relationships with my co-staff after completing the program.	108	4.34	0.515
7.	The program helped me understand the importance of teamwork and collaboration in healthcare.	108	4.35	0.517
8.	I am more confident in building effective communication skills with my co-staff now.	109	4.30	0.500
9.	I feel better prepared to develop therapeutic relationships with patients and their families.	109	4.26	0.551
10.	The program enhanced my empathy towards patients and their families.	109	4.25	0.474
11.	I believe I can effectively communicate with patients and their families after completing the program.	109	4.17	0.559
12.	I am confident in my ability to identify suitable mentors and preceptors.	109	4.28	0.507
13.	The program provided adequate guidance on selecting mentors and preceptors.	109	4.17	0.586
14.	I have a clear understanding of the organization's policies and regulations after the program.	109	4.25	0.512
15.	The program effectively covered HR policies, rules, and regulations.	109	4.25	0.564
16.	I am confident in my job responsibilities and expectations after the program.	109	4.24	0.525
17.	The program helped me understand the alignment of my job role with organizational goals.	108	4.26	0.536
18.	I feel more clarity and commitment to my job responsibilities now.	109	4.28	0.449
19.	I have a better understanding of department-specific roles and responsibilities.	109	4.28	0.507
20.	The program enhanced my understanding of interdepartmental collaboration.	109	4.28	0.525
21.	I feel more confident in cooperating with colleagues from different departments.	109	4.28	0.542
22.	I am committed to the organization's mission and values after completing the program.	107	4.32	0.488
23.	The program effectively communicated the organization's vision, mission, and core values.	107	4.32	0.488

24.	I have a clear understanding of the organization's hierarchy and reporting structure.	109	4.28	0.529
25.	The program helped me navigate the organizational structure effectively.	108	4.25	0.495
26.	I feel comfortable and safe in the workplace after the facility tour provided in the program.	107	4.26	0.482
27.	I have built valuable connections with my colleagues through the meet and greet sessions.	109	4.22	0.516
28.	I am familiar with my assigned area and its specific guidelines after the program.	108	4.26	0.536
29.	The program adequately prepared me for my job tasks through hands-on experience.	108	4.23	0.523
30.	I feel confident in my ability to perform my job tasks after completing the program.	109	4.28	0.529

Table 3. Correlations between questionnaire items and overall satisfaction.

No.	Statement	Overall satisfaction
1.	The objectives of the onboarding program were clearly communicated.	.453**
2.	The content covered in the onboarding program was relevant to my role.	.442**
3.	The strategies used in the onboarding program were effective in facilitating learning.	.448**
4.	The evaluation methods used during the program were appropriate for assessing my learning.	.399**
5.	The expected outcomes of the onboarding program were achieved.	.405**
6.	I feel better equipped to establish therapeutic relationships with my co-staff after completing the program.	.394**
7.	The program helped me understand the importance of teamwork and collaboration in healthcare.	.401**
8.	I am more confident in building effective communication skills with my co-staff now.	.483**
9.	I feel better prepared to develop therapeutic relationships with patients and their families.	.457**
10.	The program enhanced my empathy towards patients and their families.	.465**
11.	I believe I can effectively communicate with patients and their families after completing the program.	.380**
12.	I am confident in my ability to identify suitable mentors and preceptors.	.419**
13.	The program provided adequate guidance on selecting mentors and preceptors.	.365**
14.	I have a clear understanding of the organization's policies and regulations after the program.	.484**
15.	The program effectively covered HR policies, rules, and regulations.	.430**
16.	I am confident in my job responsibilities and expectations after the program.	.402**
17.	The program helped me understand the alignment of my job role with organizational goals.	.401**
18.	I feel more clarity and commitment to my job responsibilities now.	.473**
19.	I have a better understanding of department-specific roles and responsibilities.	.472**
20.	The program enhanced my understanding of interdepartmental collaboration.	.497**
21.	I feel more confident in cooperating with colleagues from different departments.	.461**
22.	I am committed to the organization's mission and values after completing the program.	.473**
23.	The program effectively communicated the organization's vision, mission, and core values.	.460**
24.	I have a clear understanding of the organization's hierarchy and reporting structure.	.440**
25.	The program helped me navigate the organizational structure effectively.	.458**
26.	I feel comfortable and safe in the workplace after the facility tour provided in the program.	.478**
27.	I have built valuable connections with my colleagues through the meet and greet sessions.	.392**
28.	I am familiar with my assigned area and its specific guidelines after the program.	.318**
29.	The program adequately prepared me for my job tasks through hands-on experience.	.438**
30.	I feel confident in my ability to perform my job tasks after completing the program.	.369**

Table 4. Overall satisfaction stratified per participant characteristics.

	N	Mean	SD
Overall satisfaction	109	8.18	1.722
Country			
Saudi	7	7.86	1.952
Egyptian	8	7.63	3.204
Filipino	41	8.51	1.434
Indian	45	7.89	1.627
Indonesian	2	9.00	1.414
Jordanian	2	9.00	1.414
Nigerian	1	10.00	.
Department			
ER	12	7.50	2.236
Inpatient	41	8.22	1.589
OPD	33	8.00	1.969
Perioperative	11	8.55	.934
Procedure	12	8.92	1.240

positively and significantly associated with total satisfaction from the overall onboarding process (Table 03).

Self-perceived satisfaction across the questionnaire's 30 items were statistically indifferent between males and females (Supplementary Material). Among different departments, nurses in the ER had relatively the lowest overall satisfaction (Table 4). Similarly, nurses of Arab origin demonstrated lower satisfaction.

Discussion.

The findings of this report reiterate the critical role of structured onboarding on the mental and organizational health of newly hired nurses. Such kind of onboarding is foundational to a stable nursing workforce that is characterized by higher retention rates, job satisfaction, self-efficacy, and ultimately, better healthcare delivery. This observed success also validates the benefits of structured orientations as cost-effective investments that could minimize the risk of early attrition [22].

Among all satisfaction items, participants, irrespective of their characteristics, valued the program's ability to promote organizational cohesion and clarity, in specific, the statements pertaining to teamwork and collaboration, and building therapeutic relationships with peers. These findings emphasize the efficacy of the onboarding process in reducing feelings of isolation through developing peer-based supportive networks. Such phenomenon could be interpreted using the Job Embeddedness Theory (JET), which is a set of constructs centered on why employees retain their jobs rather than leave [23]. Specific to our sample, the strong positive feedback on teamwork and peer-to-peer relationships reflects the program's ability to develop robust "links" within newly hired nurses. The literature stresses on the adequacy of staffing and teamwork for enhanced job satisfaction among nurses [24].

Similarly, we found that self-reported clarity regarding policies, regulations, and interdepartmental responsibilities among nurses was significantly correlated with higher overall satisfaction; given the cross-sectional design, this association cannot be interpreted as evidence that such clarity causes higher satisfaction, though it is a plausible and theoretically grounded relationship. These findings could be manifested through the "fit" dimension of JET, through which self-competency is attained from the unambiguous, clear, and structured guidance on organizational dynamics, processes, and role responsibilities. Increased sense of 'fitness' among newly hired nurses serves to reduce environmental stressors, which is translated in psychological security and job commitment [25,26]. In fact, affective commitment was observed to be a mediator of both job burnout and stress [27].

On the other hand, participants' lowest satisfaction scores were associated with items pertaining to the program's ability in raising self-efficacy, providing mentorship, and offering relevant, even if simulated, hands-on experience. The Duchscher's Transition Theory (DTT) postulates that that transition from sheltered educational environments to dynamic, unpredictable workplaces results in a shock, which is marked by a conflict between theoretical knowledge and practical expectations within the workplace [28]. Tieleman and Cable, in their study of newly graduate Qatari nurses, demonstrated

insufficient role adaption and poor self-efficacy [29]. It should be noted that transition shock is not limited to the change in expectations and environmental cues, but also intrapersonal and cultural factors [30]. Considering the diverse sets of hired nurses, a personalized, structured approach could provide higher gains compared to a generic, all-in-one program.

Among the surveyed departments, nurses working in the Emergency Department (ER) reported the lowest overall satisfaction with the onboarding program, and nurses of Arab origin reported lower satisfaction than their non-Arab counterparts. These department- and origin-based differences were not explored further through qualitative methods within the current study, and we are therefore unable to determine their underlying drivers with certainty. Speculatively, the demanding nature of emergency nursing, characterized by high patient acuity, unpredictable workloads, and frequent interruptions, may leave less protected time for structured onboarding activities such as mentorship meetings and one-on-one interviews, while the standardized, three-phase structure of the program may be less compatible with the fast-paced, non-linear rhythm of ER practice compared with more predictable inpatient units. Future research using mixed-methods or unit- and origin-tailored adaptations of the onboarding program may help clarify these differences and determine whether department- or context-specific onboarding content could narrow this gap.

The DTT also indicates that successful and competent integration into the active nursing workforce requires guidance from an accessible, responsive, and supportive preceptor; an element that was taken very seriously in the onboarding design [28,30,31]. Nonetheless, it appears that the 90-day duration may be insufficient to instill psychological and professional guidance to newly hired mentees. The literature doesn't provide clear cut-offs for the most optimal onboarding durations. Yet, it is generally agreed upon that the early periods of onboarding are where retention grows and cultivates. Furthermore, it can only be natural for institutions to significantly vary due to their institutional resources, rendering scalability and adaptability across different healthcare settings quite challenging.

Our findings shed light on a very peculiar observation, that is, the reliance of the Saudi healthcare system on internationals as only 6.6% of all newly hired nurses were of Saudi origin. We have also observed differences in satisfaction between Arab and non-Arab nurses. Despite the growth of the Saudi healthcare system and its need for competently skilled workers, reliance on international staff may result in enculturation [32]. Per Leininger's Transcultural Health Care Theory (LTHC) [33], we believe that a standardized onboarding program may omit the cultural, religious, social, and socio-political influences of both the local and international pool of nurses.

Taken together, these findings are best viewed as promising rather than conclusive. The high satisfaction scores observed across nearly all program domains suggest that the QUMC onboarding program is well received by newly hired nurses, and the associations identified are consistent with the theoretical frameworks discussed above. However, satisfaction is only one proximal indicator of onboarding success, and this study did not directly measure retention, clinical performance, or

patient-care outcomes. Future prospective, longitudinal studies, ideally incorporating a comparison group, are needed to determine whether the satisfaction observed here translates into measurable gains in nurse retention, professional performance, and downstream patient outcomes.

Limitations.

It should be noted that despite the preliminary nature of this effort, a number of limitations must be acknowledged when interpreting the presented results. First, the study adopts a cross-sectional design, which does not permit any cause-and-effect conclusions; all relationships reported here, including those between specific program elements and overall satisfaction, should be interpreted strictly as associations rather than evidence of effectiveness. Satisfaction and retention should be evaluated at multiple timepoints through a prospective design before any causal or predictive claims can be made. Second, while the SOPN tool demonstrated good internal consistency within our sample, it has not, to our knowledge, been independently validated in a Saudi Arabian or broader MENA nursing population; this limits our ability to benchmark its psychometric performance against other settings and should be considered when interpreting the reported scores. Third, our study lacked a comparator, neutral arm, which could enable the exact quantification of the impact of the current onboarding system relative to no intervention or a standard, non-personalized program; consequently, we cannot rule out that the high satisfaction observed reflects factors other than the onboarding program itself. Fourth, the observed department- and origin-based differences in satisfaction, including the comparatively lower scores among ER nurses and nurses of Arab origin, were not explored through qualitative methods, so their underlying causes remain speculative and warrant dedicated follow-up. While the current sample size may be internally valid to QUMC, larger pools of participants are needed to develop predictive models of nurse retention across the country. Finally, several groups of nurses were under-represented within the study. This includes males, Saudi nurses, and nurses of whom primary fluency is in Arabic.

Conclusion.

As long as the high nursing turnover trends persist, it is imperative for institutions to create sustainable, effective, and long-term hiring programs to maintain the quality of their nursing program and workforce. A 90-day onboarding process demonstrates promising signs of success as it was associated with significantly high satisfaction rates among newly hired nursing staff of various sociodemographic characteristics. Future research should focus on measuring retention and satisfaction at multiple long-term timepoints, explore disparities missed through structured interviewing through qualitative approaches, and accurately measure the standardized effect of such program in relation to a gold standard.

Data availability statement.

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Acknowledgements.

None.

Ethics statement.

This study was approved by the Committee of Research Ethics of Qassim University (No. 24-75-08).

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Funding.

None.

Conflict of interest.

The authors declare that they have no competing interests.

Generative AI statement.

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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Supplementary Table 1. Responses stratified per participants' gender.

Statement	Gender	N	Mean	SD
1- The objectives of the onboarding program were clearly communicated.	Male	8	4.38	.518
	Female	98	4.33	.570
2- The content covered in the onboarding program was relevant to my role.	Male	8	4.38	.744
	Female	98	4.34	.496
3- The strategies used in the onboarding program were effective in facilitating learning.	Male	8	4.50	.535
	Female	98	4.33	.493
4- The evaluation methods used during the program were appropriate for assessing my learning.	Male	8	4.25	.707
	Female	98	4.32	.510
5- The expected outcomes of the onboarding program were achieved.	Male	8	4.38	.744
	Female	98	4.22	.488
6- I feel better equipped to establish therapeutic relationships with my co-staff after completing the program.	Male	8	4.38	.744
	Female	97	4.34	.498

7- The program helped me understand the importance of teamwork and collaboration in healthcare.	Male	8	4.38	.744
	Female	97	4.35	.501
8- I am more confident in building effective communication skills with my co-staff now.	Male	8	4.38	.744
	Female	98	4.30	.481
9- I feel better prepared to develop therapeutic relationships with patients and their families.	Male	8	4.38	.744
	Female	98	4.24	.538
10- The program enhanced my empathy towards patients and their families.	Male	8	4.50	.535
	Female	98	4.23	.472
11- I believe I can effectively communicate with patients and their families after completing the program.	Male	8	4.38	.744
	Female	98	4.17	.538
12- I am confident in my ability to identify suitable mentors and preceptors.	Male	8	4.38	.744
	Female	98	4.27	.488
13- The program provided adequate guidance on selecting mentors and preceptors.	Male	8	4.38	.744
	Female	98	4.14	.574
14- I have a clear understanding of the organization's policies and regulations after the program.	Male	8	4.25	.886
	Female	98	4.24	.478
15- The program effectively covered HR policies, rules, and regulations.	Male	8	4.25	.886
	Female	98	4.24	.538
16- I am confident in my job responsibilities and expectations after the program.	Male	8	4.38	.744
	Female	98	4.23	.493
17- The program helped me understand the alignment of my job role with organizational goals.	Male	8	4.25	.886
	Female	97	4.26	.506
18- I feel more clarity and commitment to my job responsibilities now.	Male	8	4.50	.535
	Female	98	4.26	.438
19- I have a better understanding of department-specific roles and responsibilities.	Male	8	4.50	.535
	Female	98	4.26	.504
20- The program enhanced my understanding of interdepartmental collaboration.	Male	8	4.38	.744
	Female	98	4.27	.509
21- I feel more confident in cooperating with colleagues from different departments.	Male	8	4.25	.886
	Female	98	4.28	.513
22- I am committed to the organization's mission and values after completing the program.	Male	7	4.43	.535
	Female	97	4.31	.487
23- The program effectively communicated the organization's vision, mission, and core values.	Male	8	4.50	.535
	Female	96	4.30	.484
24- I have a clear understanding of the organization's hierarchy and reporting structure.	Male	8	4.38	.744
	Female	98	4.28	.513
25- The program helped me navigate the organizational structure effectively.	Male	8	4.38	.744
	Female	97	4.24	.474
26- I feel comfortable and safe in the workplace after the facility tour provided in the program.	Male	8	4.38	.744
	Female	96	4.26	.464
27- I have built valuable connections with my colleagues through the meet and greet sessions.	Male	8	4.38	.744
	Female	98	4.21	.503
28- I am familiar with my assigned area and its specific guidelines after the program.	Male	8	4.25	.707
	Female	97	4.27	.531
29- The program adequately prepared me for my job tasks through hands-on experience.	Male	8	4.25	.886
	Female	97	4.24	.495
30- I feel confident in my ability to perform my job tasks after completing the program.	Male	8	4.38	.744
	Female	98	4.28	.513
How satisfied were you with the overall onboarding process?	Male	8	9.00	1.927
	Female	98	8.10	1.708