

Can mystery patients evaluate the quality of cervical cancer screenings? A pilot study in Bolivia

¿Los pacientes misteriosos pueden evaluar la calidad de las pruebas de detección del cáncer de cuello uterino? Un estudio piloto en Bolivia

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ABSTRACT

Objective This pilot study assesses the feasibility of using mystery patients to evaluate cervical cancer screenings provided to women in rural Bolivia.

Methods We developed a protocol with local officials and adapted and pre-tested a debriefing tool. Eight mystery patients with existing appointments at four purposively selected rural facilities were recruited and trained. An interviewer debriefed patients after their screenings, and entered responses into a spreadsheet for analysis. Questionnaire response frequencies and missing observations were presented.

Results All patients completed screening and debriefing. On average, 93% of the questions were completed, with non-responses largely due to questions that were irrelevant to the screening venue. Responses revealed problems with confidentiality and dignity, minimal exam explanations or health education, inconsistencies across health facilities in Papanicolaou test availability, and problems in delivering and receiving test results.

Conclusion Our findings suggest that the mystery patient method can be useful in evaluating the quality of cervical cancer screening and the delivery of test results in rural Bolivia.

Key Words: Uterine cervical neoplasms; screening; program evaluation; health facilities (source: MeSH, NLM).

RESUMEN

Objetivo Este estudio piloto evalúa la viabilidad de utilizar pacientes misteriosos para evaluar los exámenes de detección de cáncer de cuello uterino proporcionados a mujeres en zonas rurales de Bolivia.

Métodos Desarrollamos un protocolo con funcionarios locales y se adaptó y probó una herramienta para la obtención de información. Se reclutaron y capacitaron ocho pacientes misteriosos con citas programadas para realizarse el examen de Papanicolaou en cuatro centros de salud/hospitales rurales seleccionados intencionalmente. Un entrevistador tomó la información de los pacientes después de sus exámenes y recogió los resultados en una hoja de cálculo para su análisis. Se reportaron las frecuencias y observaciones faltantes del cuestionario.

Resultados Todos los pacientes completaron la evaluación y la entrevista. En promedio se completó el 93% de las preguntas. Las respuestas faltantes se debieron principalmente a preguntas que eran irrelevantes para el contexto. Las respuestas evidenciaron problemas con la confidencialidad y la dignidad, explicaciones mínimas sobre el examen o educación para la salud, inconsistencias entre los establecimientos de salud sobre la disponibilidad de la prueba de Papanicolaou y problemas relacionados con la entrega y recepción de los resultados.

Conclusión Nuestros hallazgos sugieren que la metodología del paciente misterioso puede ser útil para evaluar la calidad de los exámenes de detección de cáncer de cuello uterino y la entrega de los resultados en zonas rurales de Bolivia.

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Palabras Clave: Neoplasias del cuello uterino; tamizaje; evaluación de programas y proyectos de salud; centros de salud (fuente: DeCS, BIREME).

Cancer of the cervix is the fourth most common cancer among women worldwide, with an estimated 569,847 new cases and 311,365 deaths occurring in 2018 (1). Women living in low- and middle-income countries (LMICs) account for a disproportionate number of cervical cancer cases and deaths, and cervical cancer is the most commonly diagnosed cancer and the leading cause of cancer death among women in Bolivia (1). Bolivia's Ministry of Health (MoH) strategies to reduce cervical cancer incidence and mortality include human papillomavirus (HPV) vaccination of girls aged 10-12 years (introduced in 2016) and a nationwide scale-up of cervical cancer screening (2). MoH protocols outline cervical cancer screening using Papanicolaou (Pap) test exams or visual inspections with acetic acid (VIA) (3). Although VIA is seen as a promising screening method for Bolivia, it has not been rolled out nationally (4,5). National guides also mention HPV self-sampling as an effective screening method, but it is still new to Bolivia (6).

Despite these advances, cervical cancer screening coverage in Bolivia remains low. The most recent comprehensive Bolivia Demographic Health Survey conducted in 2008 reports 33.3% cervical cancer screening coverage for women aged 15-49 (5,6), far below the new WHO target of 70% coverage (7). The poor quality of cervical cancer services may be an important factor in suppressing screening and treatment rates. Bolivian patients have reported shortages of providers, unfriendly providers, nonfunctioning equipment, facilities with poor hygiene, poor continuity of care, long delays for services, and lost Pap test results, especially at public health facilities (8). Approximately 50% to 80% of women who undergo cervical cancer screening in Bolivia are lost to follow-up (8). Inadequate information and tracking systems, a lack of coordination between providers for diagnosis and treatment, and weak logistics systems for transporting tests to labs and communicating results to providers and women are significant barriers to Pap screening programs in Bolivia (8). Many providers are unaware of guidelines and receive little training on new cervical cancer diagnostic techniques (8). As a result of low coverage and poor quality screenings and follow-up, fewer than 20% of eligible women in Bolivia receive treatment for precancerous cervical lesions (8,9).

Bolivia needs to assess its current cervical cancer programs to develop new policies for addressing this situation, but evaluating the quality of cervical cancer screenings in LMICs is challenging. Methods commonly

used in cervical cancer health services research include analyzing medical records and other secondary data, patient and provider surveys, and direct provider observations (10). However, these methods have shortcomings. Collecting data from medical records in LMICs is problematic as these records are often patchy and charting minimal (11). Surveys can produce biased results, and providers often alter their behavior when under observation (11-13). Assessing a health facility's structural measures, such as medical equipment, provider qualifications, and checklists, is not a reliable proxy for quality of care (14). Improved cervical cancer screening evaluation methods are needed in LMICs to inform policymakers.

The mystery patient method may be an important tool for addressing these limitations and improving Bolivia's cervical cancer screening quality assessments. Mystery patients, also known as simulated patients, are trained community members who visit health facilities in the assumed roles of patients and then complete a debriefing questionnaire on their experiences (15). Mystery patients are considered the gold standard for assessing clinical practice in high-income countries (HICs) (11,14,16,17), and have recently been used in LMIC settings (14) to assess barriers to care for sensitive services such as family planning, abortion, and mental health assessments (18-21). They have been particularly successful at documenting communication problems such as condescending attitudes, stigma, and religious counseling that patients face in seeking sensitive services (22). Mystery patients in LMICs have been primarily used to gather data on non-invasive practices such as counseling or dispensing medications. Little is known about their efficacy in assessing the quality of more invasive procedures such as cervical cancer screening (23).

Logistical and ethical concerns have limited the use of mystery patients to evaluate health services in LMICs. Many Institutional Review Boards (IRBs) will not approve research where mystery patients collect data in potentially dangerous situations where they might acquire an infection from a procedure such as an injection with a dirty needle. Guidelines for mystery patients recommend not undergoing medical exams or invasive procedures (such as gynecological exams) during visits (14,15,24). In a recent study that assessed the quality of health care for patients in Kenya, mystery patients were coached to avoid taking medications or undergoing blood tests, injections, X-rays and other invasive procedures during their encounters (11).

Another concern with this method is that the mystery patients could waste providers' time or be detected by providers during the data collection (11). In both HICs and LMICs, there have been questions about the need for obtaining informed consent from the health providers under study by mystery patients. Ethical analyses of mystery patient methods have concluded that mystery patients collecting data without the consent of the health professionals working in that system can be justified when the risks are minimal, and the research has social value (25,26). These reports suggest that IRBs could grant waivers related to informing providers about mystery patients.

Despite ethical concerns, it has been determined that measuring the quality of clinical practice using mystery patients in LMICs can be safe and effective (11). In order to ethically use mystery patients, potential ethical issues are determined and addressed early in the research design process and highlighted in IRB documents (26).

Given the potential of the mystery patient evaluation method and the need for rigorous quality assessments during the planned scale-up of cervical screening services in Bolivia, we conducted a pilot study to determine whether we could develop a mystery patient protocol that addressed logistical and ethical concerns while collecting useful quality of care information. Our objective was to assess the feasibility of using the mystery patient method to evaluate the quality of cervical cancer screening in four health facilities in rural Bolivia.

METHODS

Sample and recruitment

In coordination with local health authorities, the researchers purposively selected a rural Bolivian province, with a population of approximately 27,000 people, where health officials reported low Pap test coverage and wanted to investigate if the quality of services could explain low uptake. Together with health and social authorities, the researchers chose four communities within the province. Included in the sample was an indigenous community living far from the provincial capital.

Data collection instrument

The mystery patient debriefing questionnaire was developed using Bolivian national cervical cancer standards and international reproductive health quality improvement frameworks so evaluation results could be measured against known benchmarks (24). Drawing on clinical content and quality of care attributes, essential elements in the debriefing questionnaire included: the health facility environment, privacy and confidentiality concerns, a holistic rights-based approach with continuity of care,

interpersonal communication and education, health worker competency with safe/good practice, respect for dignity and comfort, and follow-up services (2,15,27-29). Facility-related questions covered facility location, cleanliness, and access to information. Service questions captured issues related to staff/provider attitudes, fees, respect, good practice, waiting times, communication, information, and follow-up. We also integrated cross-cutting themes on women's reproductive and sexual rights related to cervical cancer services into the questionnaire.

The initial mystery patient debriefing questionnaire, which had 56 questions, was tested with ten local community women using cognitive interviewing verbal probing techniques (30). Cognitive interviewing revealed that some women, especially older women, did not comprehend many terms and misunderstood technical phrases. Revisions included deleting unnecessary questions, expanding the questionnaire to 68 items to capture more laboratory results and follow-up information, and replacing technical terms with familiar phrases. For example, the term "confidential" was changed to "secret."

Mystery patient recruitment and orientation

As part of a larger study, we held focus groups about cervical cancer knowledge, attitudes, and practices with reproductive-age women. After the focus groups, women who already had their Pap test exams scheduled were invited to participate in this pilot study as mystery patients. Two women from each of the four communities (n=8) were selected to be mystery patients. The participant requirements and conditions were explained to the women during the informed consent process. A nurse on the research team, fluent in the local indigenous language, oriented the women to the debriefing questionnaire. This nurse was not working at the facilities under study but had previous experience with survey implementation. She reviewed the questionnaire with each woman and verified their understanding of the topics and situations addressed in the instrument. As part of the orientation, the nurse recommended that the mystery patients: behave naturally when interacting with health workers, not reveal to the staff or health workers that they are mystery patients, pay attention to exam facilities and the questions and information asked, and phone the research team nurse to debrief about their experiences soon after their visits finished. The nurse developed a timetable for the mystery patients and saved their phone numbers in order to remind them – with their consent – about their exam dates and responsibilities related to the research. The week of the scheduled exams, the nurse called the women to remind them about the appointment date and time. After the Pap test exams, another timetable was

developed related to obtaining the test results. The nurse called the women to remind them to get their test results as scheduled and reiterated the importance of calling her to debrief about results delivery.

Data collection and analysis

The mystery patients had their exams at their local health facilities during September, October, and November 2017. Two mystery patients had their Pap test exams at the Provincial 2nd level hospital, four mystery patients at local health centers, and two at an outreach clinic set up at the local school by a non-governmental organization (NGO) providing services to the community. The research team nurse used the debriefing questionnaire to collect information from the mystery patients via telephone after their exams. The nurse also talked with the mystery patients after they received their test results to record information on the results delivery process. The data was later coded and entered into an Excel spreadsheet for quantitative data analysis and description.

Ethical approval

During study design development and application for funding, ethical concerns were raised about the mystery patient method. To avoid potential issues related to participants' ongoing health needs after Pap test exams, we decided to recruit women who already had a Pap test exam scheduled. In this way, the mystery patient debriefing questionnaire was similar to an exit interview. The local health officials did not want to announce or obtain consent from health facility managers or health care providers before the research started because they felt that if clinic managers or providers knew the mystery patients would be visiting, the results could be biased. Informed consent documents outlined the requirements and conditions for the mystery patients to participate in the study. The informed consent document also highlighted the availability of a Bolivian psychologist who would be on standby for the mystery patients to contact after their exams as needed for issues that could arise during the Pap test exam procedure. The research study protocol was approved by the Touro University California IRB (# PH-5517-TW) on February 15, 2017, and the Comité de Bioética de la Facultad de Medicina, Universidad Mayor de San Simon, Cochabamba - Bolivia on February 20, 2017.

RESULTS

Eight female mystery patients aged 28–35 assessed the quality of health facilities, health services, and the delivery of test results. Information on the mystery patient sample characteristics are outlined in Table 1.

Table 1. Sample characteristics

Location (n=4)	Health Facility (n=4)	Mystery Patients (n=8)
Community A	Hospital (2nd level)	2
Community B	Health Center B	2
Community C	Health Center C	2
Community D	NGO Outreach Facility	2

Performance of the tool

See Table 2 for a summary of the tool's performance measures and Table 3 for an abridged report of patient's responses to services quality questions. The complete questionnaire and an unabridged table of responses are available on request. All women attended their screening visits and participated in follow-up debriefings. Three patients had to go to the health facility more than once to be screened. The research nurse was able to collect both the initial debriefing information and the follow-up test result information from the mystery patients using the entire questionnaire. The nurse did have difficulty tracking down some of the mystery patients after their exams, and a period of almost three weeks passed before some shared their information.

On average, 93% of questions in the questionnaire were answered completely. The number of non-responses per questionnaire ranged from one to nine, with an average of 4.88 (standard deviation = 2.53). These non-responses and problems with skip patterns were located in 15 of the 68 questionnaire items (22%). They were concentrated in the questions about the health facility environment and the behavior of non-clinical staff. Within this category, the questionnaire items with the highest number of non-responses asked about fees receptionists' attitudes. Non-responses were highest in the two patients whose screening took place at an *ad hoc* NGO screening center located in a school building and who were, therefore, unable to answer questions about particular physical aspects of the health facility (e.g., posters on waiting room walls).

Table 2. Summary of questionnaire performance indicators (n=68 questionnaire items)

	n	%
Mean number of non-responses for items per questionnaire	4.88 (± 2.53)	7
Questionnaire items with non-responses or skip pattern problems	15	22
Non-responses	12	18
Skip-pattern problems	3	4

Other than this issue, which had not been flagged in initial cognitive interviews with local women, the research team nurse and mystery patients had little difficulty understanding or answering debriefing questions. While there were a few questions with violated skip patterns, there were no other instances of consistently incomplete or inappropriate responses.

Ethical issues

There were no reported adverse consequences during the exams, and none of the mystery patients requested to speak with the psychologist who was available after their exams to discuss concerns. None of the health facility

managers or health workers reported knowing anything about the mystery patient visits. All eight of the mystery patients reported their findings after their exams without any mention of adverse events.

Health facility environment

The mystery patients reported that only the hospital offered Pap exams at least once a week. The health centers did not offer weekly Pap exams. Only the hospital had cervical cancer posters on the walls and information about women's reproductive health rights. The health centers did not have this information available to patients (Table 3).

Table 3. Screening service characteristics reported by mystery patients, abridged* (n=8)

Topic	Item	Response	n (%)
Health facility environment	Facility has signage for Pap test	Yes	1 (12.5)
	Reception staff kind (very kind / kind)	Yes	5 (62.5)
	Respectful treatment at reception	Yes	4 (50.0)
	Payment required for consultation	Yes	1 (12.5)
		Outside	6 (75.0)
	Cleaning (very clean/clean)	Inside	7 (87.5)
		Bathrooms	3 (37.5)
	Waiting room availability	Yes	5 (62.5)
	Information about cervical cancer on walls	Yes	3 (37.5)
	Information about Pap test delivered by provider	Yes	5 (62.5)
	Information in the facility about reproductive/sexual rights for women	Yes	2 (25.0)
	Pap test availability (at least one day each week)	Yes	2 (25.0)
		Very long	3 (37.5)
	Waiting time perception (from registration to examination)	Long	5 (62.5)
Health services	Provider informs about consultation secrecy	No	8 (100)
	Pap test process explained	No	8 (100)
	Treatment options (for positive Pap test) explained	No	7 (87.5)
	Return to facility several times before having the exam	Yes	3 (37.5)
	Provider used gloves during Pap test	Yes	8 (100)
	Pap test performed in a private setting	Yes	6 (75.0)
	Pap test felt rushed	Yes	7 (87.5)
	Period of time available to ask questions about Pap results	Yes	1 (12.5)
	Communicational materials about Pap test delivered	No	8 (100)
	Provider listens carefully to questions	No	8 (100)
	Provider delivers clear answers to questions	No	8 (100)
	Women felt comfortable and their dignity was respected during examination	Yes	2 (25.0)
	Women felt treated with respect during examination	Yes	6 (75.0)
	Women felt the provider was concerned about their comfort	No	8 (100)
	Importance of returning for Pap test results was explained	Yes	2 (25.0)
	Time to return to get Pap test results was informed	Yes	7 (87.5)
	Pap test exam consultation satisfaction	Very satisfactory/ satisfactory	2 (25.0)
	Pap test information satisfaction	Very satisfactory/ satisfactory	2 (25.0)
	Payment when collecting Pap test results	Yes	2 (25.0)
	Based on experience, women would recommend Pap test to friends	Yes	8 (100)
Pap test results	Results delivery performed in indicated time	Yes	2 (25.0)
	Results meaning explained by provider	No	7 (87.5)
	Completely understood results	No	6 (75.0)
	Provider asked if women had questions about the results	No	7 (87.5)
	Women had questions about the results	Yes	5 (62.5)
	Results were given to someone else	Yes	2 (25.0)
	Need for further treatment was informed	Yes	2 (25.0)
	Informed about consequences of not having treatment	Yes	2 (25.0)
	Treatment was delivered	Yes	1 (12.5)
	Informed about where and how to get treatment	Yes	1 (12.5)
	Information about when to return for another Pap test was delivered	Yes	5 (62.5)
	Sexual and reproductive health information was delivered	No	8 (100)

*Note: An unabridged table of questionnaire responses is available upon request.

Quality of Services

The mystery patients reported that 100% of the health facility staff and providers were friendly. All (100%) of the health workers at the facilities used gloves during the Pap exams. In 75% of the health facilities, exam rooms were in a private location where others could not hear conversations or see examinations.

In none of the health facilities were the mystery patients told what would happen during the exam or that the results would be kept confidential, or what treatment options they had if the Pap test results were abnormal. The mystery patients reported that only one health worker asked the mystery patient if she had any questions about the exam. None of the health workers encouraged the mystery patients to ask questions. Only at the NGO outreach clinic did the mystery patients feel comfortable with their dignity respected during the exam. Only 25% of the health workers explained the importance to the mystery patients of following up to get their test results (Table 3).

Pap test results delivery

The mystery patients reported that only hospital health workers gave them test results in the time period indicated. Only mystery patients visiting the hospital completely understood their Pap test results; the other six mystery patients did not (Table 3).

DISCUSSION

This pilot study assessed the feasibility of the mystery patient method for evaluating the quality of cervical cancer screening. The method effectively collected detailed information on Bolivia's cervical care screening program based on national and international standards. The mystery patient method was successfully implemented to collect information related to cervical cancer screening services and practices. Questionnaires were on average 93% complete, with non-responses largely stemming from differences in screening settings which rendered some questions irrelevant. There were no reported adverse events from undergoing the screening or completing debriefing and no complaints from health facility managers or health workers.

While our study is small, it is important to note that almost no other studies in the past decade report on the quality of Bolivia's existing Pap test exam screening strategy rather than new strategies such as HPV self-testing. Our findings suggest that cervical cancer screenings in this rural community operate sporadically, with key quality components lacking. Health workers are friendly but do not encourage patients to ask questions or communicate necessary information to them. The results suggest that there remain considerable challenges related to cervical screening follow-up and obtaining laboratory results.

The Bolivia MoH has focused on increasing the numbers and quality of human resources for health in rural areas and establishing digital health interventions such as telemedicine to bring services to communities. These initiatives have not been implemented to scale or evaluated (31,32). If the reports of our mystery patients are representative of other rural communities in Bolivia, they suggest that these interventions and other access and quality-improvement strategies must be revised and expanded, with a focus on strengthening the health system. Such further refining and targeting of improvements will require ongoing monitoring, evaluation, and research. This study has piloted a method and tool that may help in these efforts and has demonstrated that it can be employed without adverse impacts on patients or providers.

Several factors were important for the successful fielding of this method. First, early in the research design phase, the research team, which included male and female, clinical and public health, researchers from Bolivia and the USA, discussed and addressed potential ethical issues. Second, working with the local Bolivian health authorities to design the research was an effective and necessary process. Third, the researchers recruited motivated mystery patients due to the time and effort spent working with health and rural social authorities. Importantly, we were able to recruit women already scheduled for cervical cancer screening. Because of the researchers' preparation and high level of professionalism, they were welcomed in the field.

This study is the first to our knowledge to use the mystery patient method to assess the quality of cervical cancer screening in a LMIC setting. With fine-tuning, it can be scaled up and effectively implemented for larger samples to collect data needed to improve cervical cancer screening and elimination strategies. Evaluating reproductive health services from a mystery patients' viewpoint will provide new perspectives for more comprehensive evaluations over time.

Suggested improvements of the tool and method based on our experience include adding skip patterns or "non-applicable" responses for questions about health facility infrastructure that might not be relevant to screenings at outreach events or other locations. Questionnaire items may also need to be added or removed to address different types of screening offered at facilities (e.g., HPV testing or VIA). Data collectors will require rigorous training to ensure that questionnaires are completed fully. We would also suggest electronic rather than paper data collection/debriefing tools in the future to assist in flagging missing questions, skip pattern violations, and respondents in need of follow-up.

Limitations

There were limitations in the design and implementation of this pilot study. The small sample size meant that the sample was not representative of the community. Recall bias was a concern for mystery patients contacted only after several attempts. In addition, although patients were free to voice questions and concerns during debriefing sessions and were asked how they felt about the exam itself (Table 3), we did not systematically collect information on how patients felt about the debriefing process or how comfortable they felt in their mystery patient role. Future research should address this gap. Finally, we could not assess the quality of Pap test interpretations by pathologists using the mystery client method.

This study suggests that the mystery patient evaluation method may be a valuable tool in scaling up cervical cancer screening and elimination strategies in Bolivia and elsewhere in the region. This method could generate insightful, useful, and actionable information and facilitate health rights education by providing reliable first-hand evidence to communities and health authorities. When communities know their health care rights and demand quality reproductive services, health care quality will improve in rural Bolivia ♠

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Conflict of Interest: None.

REFERENCES

- Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries: *Global Cancer Statistics 2018*. *CA Cancer J Clin*. 2018; 68(6):394-424. DOI:10.3322/caac.21492.
- Pardo I, Luna G, Bolivien (eds.). Plan nacional de prevención, control y seguimiento de cáncer de cuello uterino, 2009-2015: movilizados por el derecho a la salud y la vida. La Paz, Bolivia: Ministerio de Salud y Deportes; 2009.
- Ministerio de Salud y Deportes. Norma Nacional, Reglas, Protocolos y Procedimientos para la Detección y Control del Cáncer de Cuello Uterino. La Paz: Estado Plurinacional de Bolivia; 2009.
- Azturizaga D. Sensibilidad y especificidad de la prueba ivaa en area rural de Bolivia-Gestiones 2012 A 2014. *Cuad. Hosp. Clín*. 2017; 58(1).
- Stormo A, Espey D, Glenn J, Lara-Prieto E, Moreno A, Nuñez F, Padilla H, Waxman, Flowers L, Santos C, Soria M, Luciani S, Saraiya M. Findings and lessons learned from a multi-partner collaboration to increase cervical prevention efforts in Bolivia. *Rural Remote Health*. 2013; 13(4):2595.
- Ministerio de Salud y Deportes. Dirección General de Servicios de Salud. Unidad de Redes de Servicios de Salud y Calidad. Guía de tamizaje de cáncer de cuello uterino de mama. La Paz: Estado Plurinacional de Bolivia; 2013.
- Canfell K, Kim JJ, Brisson M, Keane A, Simms KT, Caruana M, et al. Mortality impact of achieving WHO cervical cancer elimination targets: a comparative modelling analysis in 78 low-income and lower-middle-income countries. *Lancet*. 2020; 395(10224):591-603. DOI:10.1016/S0140-6736(20)30157-4.
- Dzuba IG, Calderón R, Bliesner S, Luciani S, Amado F, Jacob M. A participatory assessment to identify strategies for improved cervical cancer prevention and treatment in Bolivia. *Rev Panam Salud Pública*. 2005; 18(1):53-63. DOI:10.1590/s1020-49892005000600012.
- Stormo AR, Altamirano VC, Pérez-Castells M, Espey D, Padilla H, Panameño K, et al. Bolivian Health Providers' Attitudes Toward Alternative Technologies for Cervical Cancer Prevention: A Focus on Visual Inspection with Acetic Acid and Cryotherapy. *J Womens Health*. 2012; 21(8):801-8. DOI:10.1089/jwh.2012.3796.
- Guest G, Namey EE. *Public Health Research Methods* [Internet]. 1 Oliver's Yard, 55 City Road London EC1Y 1SP: SAGE Publications, Inc.; 2015. DOI:10.4135/9781483398839.
- Daniels B, Dolinger A, Bedoya G, Rogo K, Goicoechea A, Coarasa J, et al. Use of standardised patients to assess quality of healthcare in Nairobi, Kenya: a pilot, cross-sectional study with international comparisons. *BMJ Glob Health*. 2017; 2(2):e000333. DOI:10.1136/bmjgh-2017-000333.
- Fitzpatrick A, Tumlinson K. Strategies for Optimal Implementation of Simulated Clients for Measuring Quality of Care in Low- and Middle-Income Countries. *Glob Health Sci Pract*. 2017; 5(1):108-14. DOI:10.9745/GHSP-D-16-00266.
- Onishi J, Gupta S, Peters DH. Comparative analysis of exit interviews and direct clinical observations in Pediatric Ambulatory Care Services in Afghanistan. *Int J Qual Health Care*. 2011; 1; 23(1):76-82. DOI:10.1093/intqhc/mzq074.
- Das J, Holla A, Das V, Mohanan M, Tabak D, Chan B. In Urban And Rural India, A Standardized Patient Study Showed Low Levels Of Provider Training And Huge Quality Gaps. *Health Aff (Millwood)*. 2012; 31(12):2774-84. DOI:10.1377/hlthaff.2011.1356.
- Boyce C, Neale P. Using Mystery Clients: A Guide to Using Mystery Clients for Evaluation Input [Internet]. Pathfinder International; 2006 [cited 2021 Mar 2]. <https://bitly.co/9G9N>.
- Rethans J-J, Gorter S, Bokken L, Morrison L. Unannounced standardised patients in real practice: a systematic literature review. *Med Educ*. 2007; 41(6):537-49. DOI:10.1111/j.1365-2929.2006.02689.x.
- Mohanan M, Vera-Hernández M, Das V, Giardili S, Goldhaber-Fiebert JD, Rabin TL, et al. The Know-Do Gap in Quality of Health Care for Childhood Diarrhea and Pneumonia in Rural India. *JAMA Pediatr*. 2015; 169(4):349. DOI:10.1001/jamapediatrics.2014.3445.
- Fetters t, Samandari G, Djemo P, Vwallika B, Mupeta S. Moving from legality to reality: how medical abortion methods were introduced with implementation science in Zambia. *Reprod Health*. 2017; 14(26). DOI:10.1186/s12978-017-0289-2.
- Murphy AL, Gardner DM. A simulated patient evaluation of pharmacist's performance in a men's mental health program. *BMC Res Notes*. 2018; 11(1). DOI:10.1186/s13104-018-3869-5.
- Amini H, Shakiba A, Sharifi V. Evaluation of the performance of general practitioners in a collaborative care program by employing simulated patients. *Soc Psychiatry Psychiatr Epidemiol*. 2016; 51(9):1311-19. DOI:10.1007/s00127-016-1226-3.
- Yagnik P, Gold J, Stoove M, Reichwein B, van Gemert C, Corby N. Development and pilot of a framework to evaluate reproductive health call centre services: experience of Marie Stopes international. *BMC Health Serv Res*. 2015; 15(1). DOI:10.1186/s12913-015-1064-0.
- Olowu F. Quality and costs of family planning as elicited by an adolescent mystery client trial in Nigeria. *Afr J of Reprod Health*. 1998 Apr; 2(1):49-60.

23. Madden JM, Quick JD, Ross-Degnan D, Kafle KK. Undercover careseekers: Simulated clients in the study of health provider behavior in developing countries. *Soc Sci Med.* 1997; 45(10):1465-82. DOI:10.1016/s0277-9536(97)00076-2.
24. Monitoring Quality of Care through Mystery Client Surveys Guidelines. MariStopes International.
25. Rhodes KV, Miller FG. Simulated Patient Studies: An Ethical Analysis: Simulated Patient Studies: An Ethical Analysis. *Milbank Q.* 2012 Dec; 90(4):706-24. DOI:10.1111/j.1468-0009.2012.00680.x.
26. World Health Organization, Council for International Organizations of Medical Sciences. International ethical guidelines for health-related research involving humans. Geneva: CIOMS; 2017.
27. EngenderHealth (Firm). COPE for cervical cancer: a toolbox to accompany the COPE handbook. New York, NY: EngenderHealth; 2004.
28. Hulton L, Matthews Z, Stones R. A framework for the evaluation of quality of care in maternity services. Southampton: University of Southampton; 2000.
29. Bruce J. Fundamental Elements of the Quality of Care: A Simple Framework. *Stud Fam Plann.* 1990; 21(2):61-91.
30. Willis G. Cognitive Interviewing A "How To" Guide Developed [online]. North Carolina: Research Triangle Institute; 1999 [cited 2021 may 21]. <https://bit.ly/30Q7kY4>.
31. Alvarez F, Leys M, Merida H, Guzman G. Primary health care research in Bolivia: systematic review and analysis. *Health Policy Plan.* 2015; 31:114-28. DOI:10.1093/heapol/czv013.
32. Byrne A, Hodge A, Jimenez-Soto E, Morgan A. What Works? Strategies to Increase Reproductive, Maternal and Child Health in Difficult to Access Mountainous Locations: A Systematic Literature Review. Bhutta ZA, editor. *PLoS ONE.* 2014; 9(2):e87683. DOI:10.1371/journal.pone.0087683.