

RESEARCH ARTICLE

Comparative Assessment of a Self-sampling Device and Gynecologist Sampling for Cytology and HPV DNA Detection in a Rural and Low Resource Setting: Malaysian Experience

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Abstract

Purpose: This study was conducted to assess the agreement and differences between cervical self-sampling with a Kato device (KSSD) and gynecologist sampling for Pap cytology and human papillomavirus DNA (HPV DNA) detection. **Materials and Methods:** Women underwent self-sampling followed by gynecologist sampling during screening at two primary health clinics. Pap cytology of cervical specimens was evaluated for specimen adequacy, presence of endocervical cells or transformation zone cells and cytological interpretation for cells abnormalities. Cervical specimens were also extracted and tested for HPV DNA detection. Positive HPV smears underwent gene sequencing and HPV genotyping by referring to the online NCBI gene bank. Results were compared between samplings by Kappa agreement and McNemar test. **Results:** For Pap specimen adequacy, KSSD showed 100% agreement with gynecologist sampling but had only 32.3% agreement for presence of endocervical cells. Both sampling showed 100% agreement with only 1 case detected HSIL favouring CIN2 for cytology result. HPV DNA detection showed 86.2% agreement ($K=0.64$, 95% CI 0.524-0.756, $p=0.001$) between samplings. KSSD and gynaecologist sampling identified high risk HPV in 17.3% and 23.9% respectively ($p=0.014$). **Conclusion:** The self-sampling using Kato device can serve as a tool in Pap cytology and HPV DNA detection in low resource settings in Malaysia. Self-sampling devices such as KSSD can be used as an alternative technique to gynaecologist sampling for cervical cancer screening among rural populations in Malaysia.

Keywords: Cervical screening - self-sampling - gynecologist sampling - HPV DNA - Pap cytology

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Introduction

Cervical cancer screening (CCS) participation remain low in Malaysia and is expected to be much lower in rural area or low resource setting due to the poor knowledge about the disease (Min-Son et al., 2009; Wong, 2010). Cervical cancer (CC) ranked the third cancer among women in Malaysia with 45% women diagnosed in late stages (Ariffin et al., 2011). Study showed patients who first diagnosed with cervical cancer have a low survivability rate and even lower survivability among those women who were diagnosed at the late stages compared to early stages (Razak et al., 2013). Cervical cancer incidence among women in Malaysia increases after the age of 30 years and peaks at ages of 65-69 years with age standardized incidence rate (ASR) in this age group 30 per 100,000 (Zainal et al., 2011).

Early screening can prevent the disease, however due to economic status and unavailability of effective

screening system coupled with women own personal barriers towards screening, the overall coverage of Pap smear remains low (Othman et al., 2009; Abdullah et al., 2011; Nahvijou et al., 2014).

The advent of self-sampling (SS) method for cervical screening reported to have a good acceptance among women (Alba et al., 2008; Barbee et al., 2010; Dijkstra et al., 2012) and shown to be applicable among women in low resource setting (Gok et al., 2012), or among women who never had Pap screening in their lifetime thus making the self-sampling particularly attractive for primary screening (Gravitt et al., 2008). Furthermore, there are good agreement between self-samplings and clinician samplings for the detection of HPV types and high risk HPV 13 and self-sampling shown to have high sensitivity to detect CIN2 and CIN3 when compared to standard clinician sampling (Arbyn et al., 2014). The potential use of self-sampling could benefit women in Malaysian rural area. However, there was limited information found

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