

# Psychosocial Health Impact Study in Women with Abnormal Pap Smear Results

## ผลกระทบด้านสุขภาพจิตสังคมในผู้หญิงที่มีผลการตรวจมะเร็งปากมดลูกผิดปกติ

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### Abstract

Cervical cancer is a highly curable disease when detected early. Women with an abnormal Pap test experience numerous worries and concerns about cancer and fertility. This cross-sectional single visit self-administered questionnaire study was aimed to describe health and psychosocial impact among women who recently experienced abnormal pap smear result. One-hundred and fifty-one female participants, age  $33.4 \pm 6.7$  (Mean  $\pm$  SD), were enrolled after meeting the study inclusion/exclusion criteria. Health impact among them was high especially in younger and older age group. This has not been reported before. Provision of information, counseling and advice, support services and clinician consultation times needs to be available to help alleviate their concerns about infection, worry, anxiety or depression following receiving of abnormal pap results.

**Keywords:** Health impact, Human papillomavirus, HPV, Cervical cancer, Pap smear

### บทคัดย่อ

มะเร็งปากมดลูกเป็นโรคที่สามารถรักษาหายได้ในอัตราสูงถ้าได้รับการตรวจวินิจฉัยตั้งแต่แรกเริ่ม ผู้หญิงที่มีผลตรวจแพ็พผิดปกติจะมีความวิตกกังวลมากเกี่ยวกับมะเร็งและการสืบพันธุ์ ดังนั้น ผู้วิจัย จึงทำการศึกษาแบบภาคตัดขวางโดยใช้แบบสอบถามซึ่งอาสาสมัครเป็นผู้ตอบแบบสอบถามเองเพื่อศึกษาผลกระทบด้านสุขภาพในผู้หญิงที่มีผลตรวจแพ็พสเมียร์ผิดปกติซึ่งอาจเป็นประโยชน์สำหรับการให้คำปรึกษาสุขภาพและสามารถนำไปศึกษาด้านเศรษฐศาสตร์ได้ด้วยผู้วิจัยได้ทำการเก็บข้อมูลอาสาสมัครที่มีคุณสมบัติตามเกณฑ์การคัดเลือกเข้าร่วมโครงการ

และเกณฑ์การคัดเลือกออกจากโครงการจำนวน 151 คน อายุเฉลี่ยและค่าเบี่ยงเบนมาตรฐาน  $33.4 \pm 6.7$  ปี เมื่อทำการจัดกลุ่มอาสาสมัครตามอายุพบว่าอาสาสมัครกลุ่ม ที่มีอายุต่ำสุดและสูงสุดในการศึกษาครั้งนี้เป็น กลุ่มที่มีผลกระทบด้านสุขภาพและความวิตกกังวลมากกว่าอาสาสมัครกลุ่มอื่น การให้คำแนะนำ ความรู้ คำปรึกษาจากเจ้าหน้าที่พยาบาล แพทย์สูตินรีเวช จะช่วยลด ความวิตกกังวล ความเครียด กระวนกระวายหรือความกดดันต่างๆ ลงได้

**คำสำคัญ:** ผลกระทบด้านสุขภาพ เอชพีวี ฮิวแมนพาพิโลมาไวรัส มะเร็งปากมดลูก แพ้พิษเมียร์

## Introduction

Although cervical cancer is a highly curable disease when detected early, it remains one of the leading causes of cancer death in women worldwide. Early detection is effective because the precursor lesions evolve slowly into invasive cancer, typically over a period of more than 10 years. These precursor lesions (dysplasias or cervical intraepithelial neoplasias [CINS]) are detected with cervical cytology screening methods such as the pap test. In every instance where a pap screening program is introduced, incidence of cervical cancer has significantly reduced. Studies have detected human papillomavirus (HPV) in more than 90% of cervical cancers world-wide and there are plausible biologic mechanisms for cervical cancer (1). Magnitude of risk association between HPV infection and cervical cancer is greater than that for smoking and lung cancer. However, HPV infection alone is insufficient to cause cervical cancer and additional factors are required for neoplasia. Sexual transmission is dominant mechanism for acquisition of genital HPV infection. Infection is usually transient and not associated with symptoms. Up to 70% of sexually active adults will become infected with HPV during their lifetime (2-3). Although HPV testing offers potential advantages over conventional cervical screening (4-5) it may have implications for potential prob-

lems because lack of specificity means that women can test positive in the absence of clinically significant cytological abnormality. Early research suggests HPV testing may also cause psychosocial and psychological effects (6) while women with an abnormal pap test experience numerous worries and concerns about cancer and fertility associated with psychological and psychosocial burden especially women who referred for colposcopic examination (7-9). This study aimed to assess psychosocial burden in women with a recent abnormal pap test result after screening intervention.

## Methodology

The cross-sectional study protocol was approved by Ethics Committee of the Faculty of Tropical Medicine, Mahidol University and Rajvithi Hospital, Bangkok, Thailand. Women recruited were between the ages of 18 and 45 years. All participants had recently experienced an abnormal pap result with no definitive histology but including inflammation and infection and/or conforming to the Bethesda Category-2001 category of squamous or glandular cell abnormality within the past three months; were in good general health; provided signed consent for study participation, and self-completed the study questionnaires.

## Method

### Study Flow

First, database or medical records at Rajvithi Hospital, Obstetrics and Gynecology Department, were retrieved. Second, potential participants who fulfilled the study inclusion/exclusion criteria and had a recent abnormality pap smear results were identified by simple random sampling. Finally, a single study visit was schedule by study nurse with each study participant which occurred either the same day of pap test or another day following the pap test.

**Study instruments and data collection:** All study instruments (questionnaires) used in the study, except those for the demographics and medical characteristics, have previously been validated (10).

**Sheehan Disability Scale (SDS):** 3 item questionnaire qualitatively examined how diminished health status interferes with work, family-life, and school-related activities. The measure was developed and validated by Sheehan *et al* (11).

**Work Productivity and Activity Impairment Questionnaire (WPAI):** to assess the quantitative impact of health conditions on loss of time and impaired productivity for functional activities during past 7 days.

**Health State Score (HSS):** a measure on general health and well-being utilizing five items that measure the following domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression (12) in the format of a visual analog scale (VAS) on which participants were asked to select their current health status on a scale from 0 to 100, where 100 represents perfect health

and zero represents death.

**Health Utilities Index (HUI):** is a set of multi-attribute generic health status and health related quality of life (HRQL) measures during past 4 weeks. It has been used previously for a variety of health conditions but not for HPV-related diseases (13).

**Statistical Analyses:** SPSS version 11.5 was used for data entry and analysis. Data were summarized and qualitative data were presented as proportions (%). Student-t test was used for mean comparisons among 2 groups of the participants whereas analysis of variance (ANOVA) was used for comparison in means for more than 2 groups and further post-hoc analysis by LSD, which was analyzed only if ANOVA reported as statistical significant difference. Statistical significance level was set for alpha 0.05. The age of participants were classified into 4 categories on basis of quartile.

## Results

### Demographic and Medical Characteristic Data

Participants were recruited from Obstetrics and Gynecology Department, Rajavithi Hospital, Ministry of Public Health between May 2007 and December 2007. One-hundred and fifty-one participants, age  $33.4 \pm 6.7$  years, were enrolled into the study. Demographic information and Medical history data for all the gynecological conditions within the past 5 years and for all other medical conditions for the past 30 days is presented in Table 1.

A majority of the participants were married (70.9%), had educational level less than associate degree (65.6%), and had household income be-

**Table 1** Demographic and gynecological history within the past 5 years, include all other history for the past 30 days

Demographic and Medical History	N (151)	%
<b>Demographic data</b>		
Marital status		
Not married	26	17.2
Married	107	70.9
Separate/widow/divorced	18	11.9
Education		
Less than associate degree	99	65.5
Associate degree or Bachelor's degree	49	32.5
Graduate or Professional degree	3	20
Household income (baht/month)		
< 5,000	2	1.3
5,000 - 10,000	30	19.9
10,001 - 15,000	21	13.9
15,001 - 20,000	23	15.2
20,001 - 25,000	19	12.6
25,001 - 30,000	17	11.3
30,001 - 35,000	13	8.6
35,001 - 40,000	4	2.6
40,001 - 45,000	3	2.0
45,001 - 50,000	6	4.0
> 50,000	13	8.6
<i>Gynecological history within the past 5 year, include all other history for the past 30 days</i>		
None	124	82.1
Yes	27	17.9



tween 5,000 - 10,000 baht/month (19.9%). Twenty-seven participants (17.9%) reported medical events that included any gynecological events within the past 5 years and events for all other conditions in the past 30 days. Among 27 participants who reported the medical events, gynecological events (e.g. chocolate cyst, endometriosis, ovarian cyst abortion) were the majority events reported.

### Study Measurements

**Sheehan Disability Scale (SDS):** The participants reported their recent gynecological examination or result markedly/extremely interfered with their work, social life and family life/home responsibilities (Table 2).

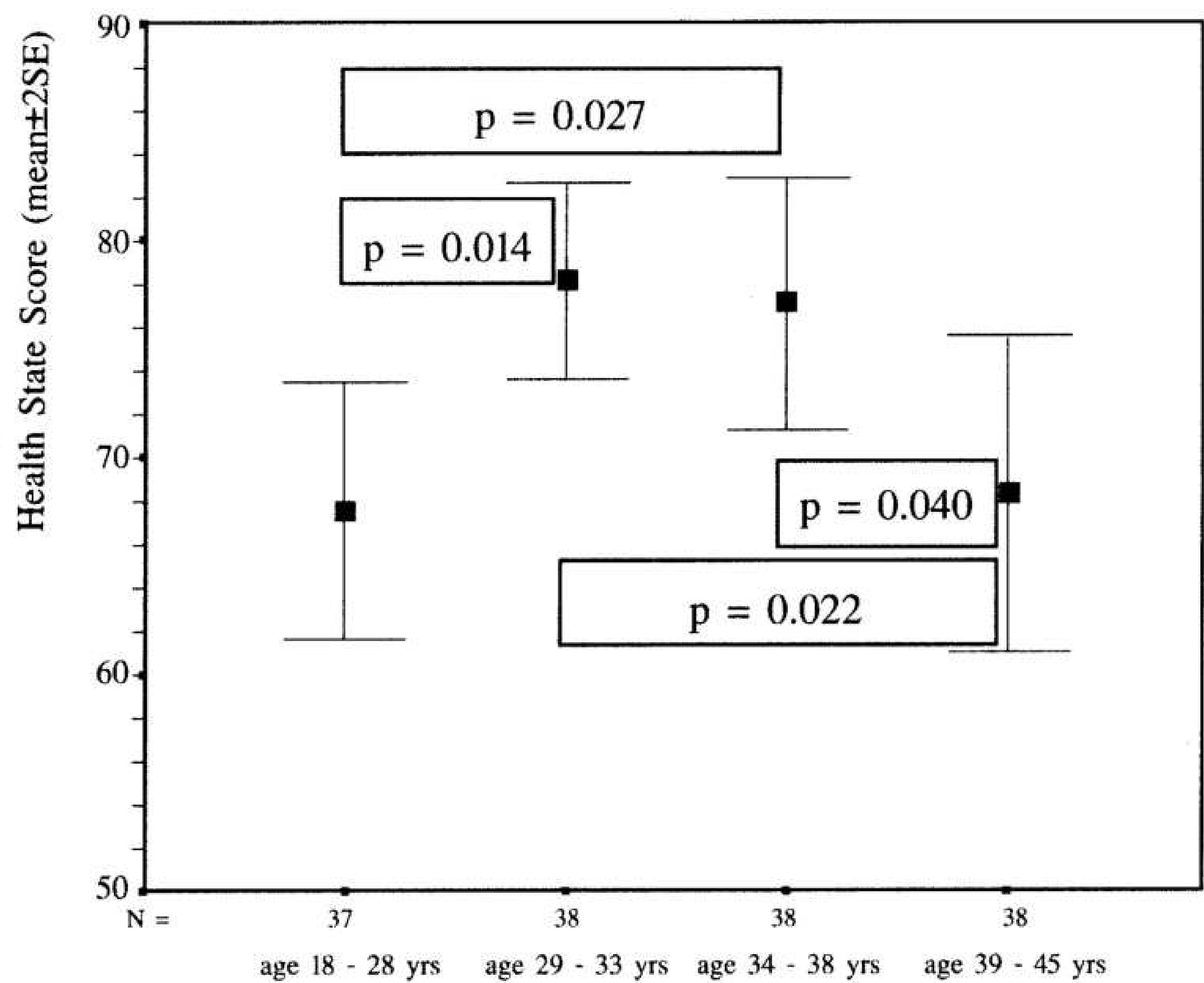
**Table 2** Sheehan Disability Scale (SDS) in 3 domains as interfere working, social life and family life/home responsibilities

SDS Scale	Interfere working		Interfere social life		Interfere family life / responsibility	
	N (151)	%	N (151)	%	N (151)	%
Not at all	69	45.7	94	62.3	75	49.7
Mildly	41	27.1	27	17.8	35	23.1
Moderately	28	18.6	26	17.3	27	17.9
Markedly	11	7.3	3	1.9	10	6.7
Extremely	2	1.3	1	0.7	4	2.6

**Work Productivity and Activity Impairment Questionnaire (WPAI):** Only 63.6% (96/151) are currently working for pay. Among 96 participants, 61.5% (59/96) did not miss any work because of problems associated with gynecological health while one participant (1%) reported missing 84 hours recuperating following a surgical operation. Overall, workers worked on average  $50.6 \pm 18.1$  hours per week (ranging from 8.5 hours to 105 hours) while missed hours from work was  $3.4 \pm 9.3$  hours per week (ranging from 0

hour to 84 hours). Among 21 participants (13.9%) who attended classes in academic setting, 42.9% (9/21) did not miss any class and one participant (4.8%) missed classes for 7 hours in the past 7 days. On average, students missed  $1.1 \pm 1.6$  hours of class per week (ranging from 0 hour to 7 hours). Apart from missing work and classes, on average the gynecological illness affected  $2.0 \pm 2.7$  hours per week of regular daily activities time (ranging from 0 hour to 10 hours).

**Health State Score (HSS):** All participants were asked to select their current health status on a scale from 0 to 100. Mean HSS  $\pm$  SD from 151 participants was  $72.83 \pm 18.91$ . Mean HSS  $\pm$  SD score for age categories 18-28 years, 29-33 years, 34-38 years, and 39-45 years was  $67.57 \pm 18.05$ ,  $78.16 \pm 14.11$ ,  $77.11 \pm 18.11$  and  $68.34 \pm 22.56$ , respectively. The differences in mean scores among four age groups were statistically significant ( $p = 0.017$ ). Further analysis was performed by *post hoc* analysis and statistically significant difference in mean HSS among age groups were shown.



**Figure 1** Health State Score among different age group

Mean HSS  $\pm$  SD score by marital status categories never married, married, and separate/widow/divorced was  $71.9 \pm 18.1$ ,  $74.2 \pm 17.4$ , and  $66.1 \pm 26.8$ , respectively, with no statistically significant difference ( $p = 0.239$ ). For educational level, there were only 3 participants with graduate or professional degree, Mean  $\pm$  SD HSS was  $46.7 \pm 40.4$  while for associate degree or bachelor degree and less than associate degree was  $72.3 \pm 18.1$  and  $73.9 \pm 18.2$  respectively. There was statistically significant difference in mean HSS scores among the 3 education groups with  $p = 0.046$ . The lowest HSS score for the first group, the second and the third groups was 20 ( $2/99 = 2.0\%$ ), 20 ( $1/49 = 2.0\%$ ) and 10 ( $1/3 = 33.3\%$ ). HPV health information, only 15.9% ( $24/151$ ) reported as having been told or knew about HPV. There was statistically significant difference in

mean HSS as  $64.7 \pm 20.1$  and  $74.4 \pm 18.3$ , respectively, between the group who reported as having been told or knew about HPV and the group that did not ( $p = 0.021$ ). All of those reporting having been told or knew about HPV understood that there will be long term effects of HPV to their health with 95.8% (23/24) thought about possible risk to cervical cancer.

**Health Utility Index (HUI):** The HUI was used for assessing major events that participants had experienced during past 4 weeks period which focus for abilities, disability and feeling. Ability for seeing and hearing was mainly normal, that is seeing or hearing well enough without using visual/hearing aids ( $> 75\%$ ). Ability to be understood completely when speaking with a stranger was 81.5% (123/151) while with known people it was 94.7% (143/151). The remaining participants were understood partially, 18.5% (28/151) and 5.3% (8/151) respectively. Difficulty walking or using hands/ fingers were reported only less than 5%. Everyone could perform basic activity such as eat/dress and use toilet normally. The participants who reported feeling happy and interested in life were 53% (80/153), those somewhat happy were 35.1% (53/151), somewhat unhappy were 11.3% (17/151), and only 0.7% (1/151) reported very unhappy. For feeling fretful/angry/irritable/anxious or depress, only 40.4% (61/150) reported free from those feelings, while 57.3% (86/150) and 2.0% (3/150) reported those feelings occasionally and often respectively. However for judgment of overall health rate, participants reported 4.6% (7/151) excellent, 27.2% (41/151) very good, 47.0% (71/151) good, 20.5% (31/151) fair and 0.7% (1/151) poor.

(31/151) fair and 0.7% (1/151) poor.

## Discussion

A psychological impact of human papillomavirus testing was detected in this study. Women with HPV positive test results had raised anxiety, irritability and distress when compared with women receiving normal pap test result (14-16). Marked or extreme interference with their work and family life/home responsibility was reported close to 10% (8.6% and 9.3% respectively). These particular groups worry much about their working and family life/home responsibility in particular older age group (age 39-45 years), which corresponds with their health status scores (HSS). The mean HSS  $\pm$  SD was  $72.83 \pm 18.91$ , however after all participants were categorized according to their age, the HSS for age group 39-45 was lower at  $68.34 \pm 22.56$ ; but the lowest HSS was  $67.57 \pm 18.05$  in age group 18-28 years. For HPV health information, only 15.9% (24/151) reported they have been told or know about HPV. All of them understood that there will be long term effects of HPV to their health, and 95.8% (23/24) thought about possible risk to cervical cancer. As the understanding of the association of HPV with cervical neoplasia increases, new screening interventions may be developed Ancillary screening techniques such as HPV typing and cervicography may be useful but need further study (17). However women with abnormal pap smears may need more education and counseling and/or advice to alleviate their concerns about infection (18). So for provision of information and support services, and clinician consultation times should be considered in women who have abnormal pap results.

## Conclusion

Psychological health impacts among who have abnormal pap smear were seen especially in younger and older age group. Provision of information counseling, and advice as well as other support services, need to be strengthened to help alleviate their concerns about infection and cope with worry, anxiety or depression.

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