

## Health worker confidence in diagnosing and treating mental health problems in Papua New Guinea

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### Abstract

*Confidence in identifying different diagnostic categories of mental disorders by general health workers who provide the bulk of Papua New Guinea's (PNG) mental health care is vital for the country's provision of mental health care. Making a psychiatric diagnosis is complicated by PNG's diverse culture and estimated 800 distinct languages. These cultural-linguistic factors influence help-seeking behaviour and continued use of traditional treatment despite the introduction of western approaches to mental health care. The aim of this study was to determine the confidence of health workers in identifying and diagnosing different categories of mental health problems in this complex environment. A sample of 209 Papua New Guinea health workers from four geographic regions completed a questionnaire that assessed background levels of training and confidence in diagnosing a range of modern and culture specific diagnoses. Overall, respondents reported relatively little prior mental health training. Consistent with this were the relatively low levels of confidence for culture specific diagnoses (e.g. sorcery), but significantly higher levels of confidence with modern diagnoses (e.g. depression). The implications of the findings for training and provision of mental health care are discussed.*

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Traditional treatments based on cultural beliefs about the causes of mental illness remain an important part of health care in developing countries including Africa (Jeiyeboba, 1988; Roberts, 2001), Asia (Razali & Najib, 2001; Zhang, 2001), the Middle East (Al-Krenawi, Graham, Ophir & Kandah, 2001) and India (Banerjee & Roy, 1998; Chadda, Agarwal, Singh & Raheja, 2001). Even in highly developed countries like the United States of America, migrant populations continue to seek traditional alternatives prior to using western treatment (Flaskerud, 1986; Kim, et al., 2002). This suggests that traditional medicine plays an important role in both developed and developing countries where economic and cultural factors affect access to western mental health care. It also suggests that deep-seated cultural beliefs may be a major barrier to the uptake of western psychiatric treatment (Razali & Najib, 2000).

- Traditional beliefs concerning causes of mental illness (“longlong” in Pidgin or “Kavakava” in the Motu language or “Kiakaenge” in the “Enga” language) and other physical illness in Papua New Guinea (PNG) are widely centred on sorcery,

witchcraft, spirit possessions/supernatural agents, violation of social norms and “taboos”, and illnesses due to no known cause (Sinclair, 1957; Burton-Bradley & Julius, 1965; Langness, 1965; Burton-Bradley, 1973; Lewis, 1975; Robin, 1979; Frankel, 1986; Hamnett & Connell, 1981; Lepowsky, 1990; Stavovy, 1996). Spirits and supernatural agents are believed to cause illness when an individual or a group has violated social taboos and norms or have failed to fulfil culturally expected obligations. Alternatively, illness caused by sorcery and witchcraft is thought to be related to frustrations, jealousy of achievements of others, anger, and revenge/payback. Chronic illness and death are almost always attributed to sorcery. Sorcery is commonly used both to explain the cause of illness and as a form of treatment.

- Illnesses attributed to both sorcery/witchcraft and spirit possession/supernatural agents are commonly known as illnesses of the settlement/village or “sik bilong ples” (Hamnett & Connell, 1981). Illness not attributed to sorcery/witchcraft and spirit possession/supernatural agents are commonly known as just an illness or “sik nating.” These include simple acute illness and seasonal or environmentally associated illnesses such as the common cold, diarrhoea and fever during fruit/nut season (Hamnett & Connell, 1981).

“Sik nating” also includes abnormal behaviours of excessive laughing, singing and self-decorating during the mushroom season (“mushroom madness”) and during pundanus nut season (“pundanus madness”) (Reay, 1960, 1965). Persons affected by the seasonal illnesses usually recover without treatment.

Illnesses believed introduced to PNG as a result of western contact are known as “illness of the white man” or “sik bilong waitman.” These include problems associated with lifestyle changes such as diabetes, heart disease and cancer. In the case of mental illness factors associated with immigration from rural areas into urban centres have created major lifestyle problems including the break down of cultural norms, unemployment, increased consumption of alcohol and use of substances such as cannabis (PNG Department of Health, 2000).

Beliefs about causes of psychological and physical illness also influence help-seeking behaviours. Traditional treatment is usually sought prior to western treatment. For example, a study by Stavovy (1996) found that patients with a diagnosis of schizophrenia sought traditional treatment at some point during the course of their illness. Other studies have reported the use of traditional treatment prior to and alternately with western treatment despite the introduction of formal western health care in the 1950’s (Burton-Bradley, 1965, 1973; Pulsford & Cawte, 1972; Hamnett & Connell, 1981; Frankel, 1986; Lepowsky, 1990; Stavovy, 1996; Decock et al., 1997). Another interesting distinction is that western treatment is seen as cure for symptoms whereas traditional treatment is seen as a cure for the cause of the illness (Hamnett & Connell, 1981; Frankel, 1986).

Traditional treatment involves four main types of healing processes: medicines, spells, rituals and counselling (Stavovy, 1996, p.135). The medicines used include a range of herbal plant parts such as leaves, stem, roots, flowers and seeds. Animal sacrifices in part or whole are also included as medicine. A form of words repeatedly chanted during the healing process represents the spell. The ritual involves a traditional specialist, using medicine and the words of the spell, carried out as a whole healing process or act. These healing practices are also used for protection against sorcery, spirits and supernatural agents that cause illness and misfortunes. The fourth type of treatment involves counselling the concerned individual and others who may be seen as contributing to the problem by either the head of the family, elders or the chief of the clan or tribe. The outcome of the counselling session usually ends with the counsellor telling the client(s) what to do to help solve the problem. The type of treatment applied is dependent on the varied cultural

beliefs regarding the cause of the illness. The most widely practised traditional treatment described in the literature appears to be sorcery.

Sorcery is used to treat illnesses believed caused by sorcery. Sorcery practice can also be performed for prevention and protection from illness and other misfortunes. Sorcery beliefs and practices in relation to; cause of illness, diagnosis of sorcery as a form of culture specific diagnosis, use of sorcery as a form of treatment, prevention, and protection are influenced by strongly held cultural beliefs and languages. Cultural beliefs and languages are inseparable and are likely to resist change. Sorcery involves the art of black magic or spells by a sorcerer or witch. It is also known as “posin” (or poison) in Neo Melanesian Pidgin or “puripuri” in motu. Sorcery is also identified as poison because sorcery and poisoning tend to overlap in some cultures. Similarly, the sorcerer is described as “man bilong workim posin” in Pidgin. How the sorcery is believed to be performed by the sorcerer or witch varies among individuals and cultural-linguistic groups (Stavovy, 1996). For example in some cultures the sorcery or magical ritual may occur directly by administering certain types of poison in drinks or food, it may also be performed using body parts of the victim such as hair, or using scraps of left over food from the victim and/or the victims clothing. Hair, clothing, left over food and other belongings of the victim may be buried in cemeteries where dead spirits can have access and make the victim mentally ill (“longlong”). In some cultures it is believed that spirits can be sent to the victim by the sorcerer to make the victim ill. These provide just a few examples of widely varying sorcery practice in PNG.

Most people fear sorcery and witchcraft and do not discuss such issues for fear of illness and misfortune. Sorcery attributed illnesses appear to be linked with anger and revenge or “payback” for insults or death, and jealousy of others’ achievements. However, not all sorcery is bad, a sorcerer can also perform sorcery to promote health and protect one from illness and misfortunes (often invoked by sorcery and witchcraft). Sorcery can also be used for matchmaking and love potions.

Spirit possession is usually thought to involve evil spirits and spirits of dead family members or ancestors. Spirit possession is often believed to occur as a punishment for crime, or misbehaviour such as violation of social “norms” or “taboos”. Violation of norms or taboos might involve trespassing restricted areas where ancestral spirits and evil spirits dwell or not fulfilling socially required obligations such as looking after parents when they are old. For example, if a sibling has not been good to the parents while they were living, then the spirits of the dead parents are believed to come back to punish the offspring and make him/her mentally unwell. Whilst there are some common beliefs about spirit possession and sorcery across cultures, beliefs about different types of spirit possession and sorcery that lead to mental illness also vary across cultures in PNG and between the different cultural-linguistic groups (Stavovy, 1996).

Sorcery and witchcraft are the most widely practiced and feared traditional practices that are believed to cause both psychological and physical illness and form the basis for most traditional treatment (Sinclair, 1957; Burton-Bradley & Julius, 1965, Burton-Bradley 1965, 1973; Pulsford & Cawte, 1973; Frankel, 1986; Lepwosky, 1990; Stavovy, 1996). Sorcery and witchcraft beliefs and practices are feared for their powers even among some educated Papua New Guineans. For example, a study by Burton-Bradley (1990) found 84 percent ( $n = 110$ ) tertiary education students believed sorcery practice has the power to cause illness. Stavovy, (1996, p.103) also found that patients suffering from schizophrenia believed sorcery and spirits possession to be the cause of their illness. These and a number of other studies support the reports that there is wide practice and belief concerning sorcery to be the cause of mental illness as well as other chronic and serious physical illness (Hamnet & Connell, 1981; Frankel, 1986; Stephen, 1987; Lepowsy, 1990). The strength of these beliefs and their high resistance to change are important considerations when caring for persons with both psychological and physical illness Stephen (1987) warns “*to ignore beliefs in sorcery is to ignore an important dimension in any problem*” (Stephen, 1987, p.1).

However, the Papua New Guinea Health Department in its recent policy to promote traditional medicine for the next decade has excluded sorcery and witchcraft related practices as forms of traditional treatments (PNG Department of Health, 2000). The rationale for this decision is based on one factor that they are inherently dangerous practices and should not be given legitimacy (PNG Department of Health, 2000). However, there are no data to distinguish between dangerous and non-dangerous forms of sorcery and witchcraft practices. While a number of studies have examined the beliefs about causes of mental illness and individual psychotic reactions in different cultural-linguistic groups in general population (Sinclair, 1957; Reay, 1960; 1965; Rodrique, 1963; Newman, 1964; Burton-Bradley & Julius, 1965; Langness, 1965; Salisbury, 1967; Hoskins et al., 1969; Lewis, 1975; Stavovy, 1996), little is known about the knowledge and confidence of general clinical health workers in the use of both modern and cultural mental health approaches to the treatment of mental illness in such a complex environment.

There are several factors that are likely to impinge on what general clinical health workers know about mental health issues and their ability to diagnose mental health problems/disorders. Perhaps foremost is the amount of training they have received. However, there are also substantial differences in the reliability of “classification” related to culturally specific disorders and Western systems of diagnosis. For example, the common culture specific “diagnoses” identified and included in the present study also overlap considerably with beliefs/perceptions concerning the causes of both mental illness and physical illness. Thus, they may not be seen as a diagnosis in the same way as defined by Western classification systems. With traditional culture specific mental illnesses in most instances there is little distinction between causes and the “diagnosis”. Thus, the conceptualisation and classification, particularly of culturally specific mental health problems are greatly influenced by culture, language, and beliefs (Sinclair 1957; 1964; Burton-Bradley, 1963, 1973, 1990; Burton-Bradley & Julius, 1965; Stavovy, 1996) as well as training.

In PNG the specialist mental health workforce is very small. There are only five qualified psychiatrists with a sixth in full time management and part time clinical work and one senior registrar still under training (a ratio of one psychiatrist per every one million people and all psychiatrists were located in Port Moresby). There are approximately seventy-four professionally trained psychiatric nurses (a ratio of one psychiatric nurse to every 67,567 people) and one tertiary referral psychiatric hospital (located 15 kilometres outside Port Moresby). Only four provincial hospitals out of eighteen hospitals have acute psychiatric units and these specialist units are located in Port Moresby, regional and provincial centres serving the minority of the population (18%). The majority of the population (82%) live in the rural areas of PNG. This means that a substantial amount of mental health assessment and treatment falls to general health workers. However, there are almost no data regarding the capacity of this important workforce in providing mental health care.

The aim of the present study was to explore and provide a preliminary description of the background mental health training of general health workers. In addition, it will describe their confidence in providing aspects of traditional culturally based assessment and treatment and modern Western based approaches to mental health treatment.

### **Method**

This study was part of a larger study that investigated mental health issues in PNG. The research protocol was reviewed and approved by the Medical Research Advisory Committee of the PNG Department of Health and the University of Wollongong Human Ethics Committee.

#### ***Health workers***

The study focused on three broad categories of health workers in PNG: Health Extension Officers (HEO), Nursing Officers (NO), and Community Health Workers (CHW). Health Extension

Officers have a basic training period of three years at the College of Allied Health Sciences in Madang followed by one-year internship. Their place of employment is in supervisory levels at health centres, health sub-centres and in management in health department, provincial health office and district health offices. They perform clinical, management and community health duties. Some HEOs also work in health training institutions and hospitals in specialised areas after completing relevant post-graduate training programs.

Nursing Officers (NO), have three years basic training in nursing and they are employed in hospitals, health centres, and health sub-centres and urban clinics. Few NOs are taking up management responsibilities at the provincial and district levels.

Community Health Workers (CHW) have a two-years basic training and are trained to work in aid-posts in villages with limited facilities. They are primary health care workers who identify common illnesses and refer patients to health centres or health sub-centres for further management. Some CHWs are employed in hospitals, health centres, health sub-centres and urban clinics. The length of time allocated for mental health during basic training for each of these three categories of general clinical health workers is discussed further in the results and discussion section of this study.

These three categories of health workers were significant because they allow for a further identification of workers on the basis of their assumed level of basic knowledge (the more years spent in basic training the higher their level of knowledge and in theory the greater their ability to diagnose and treat the different types of mental disorders). They also allow for a further identification of workers on the basis of their exposure to traditional medicine. (The more remote the health care setting the higher the likelihood of exposure to traditional medicine and its influence on them as western trained health workers with their own cultural-linguistic backgrounds).

### ***Participants***

The sample comprised all 209 general clinical health workers who attended a series of four regional mental health training workshops conducted by the PNG Department of Health. Health workers held the following positions: 70 HEOs, 95 NOs, and 44 CHWs representing 2.4% (209/8895) of the total workforce in these health worker categories in PNG (Department of Health, 1998). There were 129 male and 80 female health workers with ages ranging from 22 to 53 years ( $M = 34.67$ ,  $SD = 6.88$ ). Their educational background ranged from elementary to grade 12 (less than grade 9 = 11; grades 9 to 10 = 148 and grades 11 to 12 = 50). Their length of service in the health department ranged from 1 to 32 years ( $M = 11.48$ ;  $SD = 7.96$ ), with most being in service for 1 to 11 years (62%). Participants were most commonly employed in health centres ( $n = 96$ , 46%) followed by district hospital ( $n = 25$ ), health sub-centre ( $n = 21$ ), aid posts ( $n = 17$ ), provincial hospital ( $n = 13$ ), urban clinics ( $n = 13$ ), while the remainder were from a range of other settings ( $n = 18$ ). The participants also represented all 20 provinces within the four regions of PNG (Southern Region,  $n = 66$ , Momase Region,  $n = 54$ , Highlands Region,  $n = 58$ , New Guinea Islands Region,  $n = 31$ ). Provincial and institutional supervisors nominated health workers for the training. Prior to participation in the training workshops all attendees were provided with information about the study and the opportunity to participate in the research.

### ***Measures***

The questionnaire items used in the present article comprised the first part of a larger three-part study. This first part focused on health worker characteristics and confidence in assessment and treatment of various forms of mental illness in PNG.

The second part involved retrospective review of three of the most recent patients treated by the health workers in the community. The third part focused on pre-post mental health workshop training outcomes (e.g. knowledge change).

The English version of the questionnaire was translated into the Neo-Melanesian language (Pidgin) and then back translated by two PNG health workers for verification. The questionnaire was pilot tested on a sample of eight university students from PNG to identify ambiguous or confusing items but this resulted in no changes.

The present study assessed participants' level of confidence in diagnosing six common mental disorders (schizophrenia, depression, personality disorder, anxiety disorder, substance use disorder and somatization) based on ICD-10 (WHO, 1993) and DSM-IV (American Psychiatric Association, 1994). The assessment of confidence level also included assessing confidence in diagnosing five culture specific diagnoses (sorcery, witchcraft, magic, spirit possession and amok syndrome) commonly recognised throughout PNG (Sinclair, 1957; Burton-Bradley & Julius, 1965; Meggitt, 1965; Pulsford & Cawte, 1973; Burton-Bradley, 1973, 1990; Hamnett & Connell, 1981; Flaskerud, 1986; Frankel, 1986; Lepowsky, 1990; Stavovy, 1996; Noble, 1997; Mai, 1997). As noted, these culture specific diagnoses are also beliefs concerning causes of mental illness. However, they are also used as diagnoses and in some cases (e.g. sorcery) may also be used as a form of treatment. The item stem stated, "Health workers are confident in diagnosing the following". The modern diagnostic categories and cultural specific illnesses were then listed with a confidence rating provided for each of the eleven disorders.

Each disorder category was rated on a 4-point Likert scale ranging from, (1) strongly disagree to (4) strongly agree. The scale also provided a "don't know" option. Participants were instructed to consider the term "health worker" as the same category of health worker in which they were currently employed.

Using the same response scale, seven additional items were included to expand on confidence ratings for both modern and culture specific disorders. For both modern and culture specific mental health problems they were asked: "health workers understand the difference between above mental illnesses". For modern diagnostic categories they rated the degree of agreement to, "health workers use the above diagnostic categories to make a diagnosis when they see a person with mental illness", "health workers know when and where to refer a mentally ill person who needs specialist mental health care".

For culture specific diagnoses they were asked to rate, "health workers are confident in consulting and working with a traditional healer regarding treatment of patients with culture specific mental illnesses", "health workers are familiar with specific symptoms of these culture specific diagnoses", and "health workers are familiar with cultural beliefs concerning the causes of mental illnesses".

The questionnaire also had a range of items to determine levels of training in mental health. These included the number of weeks devoted to mental health training at both undergraduate and postgraduate levels. Several items also asked about health workers capacity to speak the local language since it was suspected that this maybe related to familiarity and use of more traditional cultural approaches to mental health assessment and treatment.

Other additional items in the study included ratings on use of both traditional treatment and medication using a 4-point response format (1 = Not at all, 2 = A little bit, 3 = Somewhat, 4 = A great deal). Participants were asked "do you use modern medication e.g., chlorpromazine", "are you confident in prescribing modern medication", "do you get enough supplies of psychotropic drugs to meet your needs", "are you familiar with the different types of traditional treatment for mental illness used in your area", "do you have access to traditional treatment". The results of these additional items are reported in the results section.

### ***Procedure***

A letter was sent from the PNG National Health Department to all the Provincial Health Advisors

informing them of the regional mental health training workshops and of the study being carried out during the workshop. The provincial officers were requested to nominate individuals for training and to inform them about the potential to participate voluntarily in the study. Due to communication and geographical difficulties it was impossible to send information packages and consent forms to the participants prior to the study. Participants were given information on the study and consent forms during registration on the first of the 5-day training workshop. The researcher (BK) reviewed the information package with the participants, highlighting the voluntary nature of participation and confidentiality. All workshop participants agreed to participate in the study.

Training workshops and the study were conducted in four regional locations: Port Moresby for Southern Region ( $n = 66$ ), Madang for Momase Region ( $n = 54$ ), Mt Hagen for Highlands Region ( $n = 58$ ) and Rabaul for New Guinea Islands Region ( $n = 31$ ). The workshops were conducted between September 2001 and December 2001. Data for the present study were gathered prior to commencing training on the first day of each training workshop.

## Results

Table 1 provides the mean confidence levels in diagnosing a range of mental disorders. The mean level of confidence ranged from substance use disorder ( $M = 2.65$ ) to amok syndrome ( $M = 1.85$ ). In general, the modern diagnostic categories had higher mean levels of confidence (with the exception of schizophrenia) while participants showed lower mean levels of confidence for the culture specific diagnoses.

Table 1  
*Mean level of confidence in diagnosing a range of mental disorders*

Disorder	Mean*	SD	N	% Don't know
Substance Use Disorder	2.65	.78	187	11% ( $n = 20$ )
Depression	2.47	.08	194	6% ( $n = 12$ )
Anxiety Disorder	2.39	.78	186	12% ( $n = 22$ )
Personality Disorder	2.32	.81	182	14% ( $n = 25$ )
Spirit Possession	2.23	.83	168	23% ( $n = 39$ )
Somatization	2.22	.78	152	34% ( $n = 52$ )
Sorcery	2.16	.80	177	17% ( $n = 30$ )
Schizophrenia	2.12	.78	167	24% ( $n = 40$ )
Witchcraft	2.10	.73	166	23% ( $n = 38$ )
Magic	2.06	.73	179	16% ( $n = 29$ )
Amok Syndrome	1.85	.60	114	26% ( $n = 30$ )

\*1=Not at all, 4 = A great deal

A number of participants chose the "don't know" option. This led to "missing data" for the calculation of mean scores on the modern and traditional categories. To check the potential effects of this missing data, t-test comparisons were made by calculating the mean of available items (e.g. 4 of the 6 diagnoses in the modern category) compared to using the means only when all items were available (i.e., 6 of 6 diagnoses in the modern category).

Using the mean only when all items were completed, there was a significant difference between confidence in making modern diagnoses ( $M = 2.19$ ,  $SD = .61$ ) and culture specific diagnoses ( $M =$

1.95,  $SD = .59$ ;  $t(77) = 3.21$ ,  $p < .01$ ). When using the means of available items (i.e., some missing items) the pattern of findings was the same, with confidence in making modern diagnoses ( $M = 2.43$ ,  $SD = .67$ ) significantly higher than for culture specific diagnoses ( $M = 2.13$ ,  $SD = .70$ ;  $t(187) = 4.67$ ,  $p < .001$ ).

Differences between confidence ratings for modern and culture specific diagnoses were significant with or without the inclusion of missing data, in that, participants believed health workers were significantly more confident in diagnosing modern categories of mental disorders than culture specific diagnoses/illnesses.

Participants were also asked how much they agreed with the statement that health workers understood the difference between the modern subset of diagnoses and the traditional subset of diagnoses. For modern diagnoses, 22% agreed that health workers understood the differences and 78% disagreed. For culture specific mental health problems, 38% agreed and 62% disagreed that health workers understood the differences between the culture specific problems. A paired t-test indicated that respondents felt significantly less confident at differentiating between modern diagnoses ( $M = 1.98$ ,  $SD = .71$ ) than between culture specific diagnoses ( $M = 2.23$ ,  $SD = .76$ ;  $t(157) = -3.99$ ,  $p < .001$ ). Table 2 also provides the proportion agreeing and disagreeing with additional items regarding understanding and confidence of health workers regarding different mental health problems. In general, the results indicate a lack of confidence and understanding regarding differential diagnosis. Despite some uncertainty about the differences between cultural diagnoses just over half indicate that they were familiar with cultural beliefs concerning the causes of mental illness. Most agreed that they know when to refer to a specialist.

Table 2

*Agreement about understanding and confidence of health workers regarding different mental health problems*

Items	Agree*		Disagree*	
	<i>n</i>	%	<i>n</i>	%
Understand difference between modern diagnoses	42	22%	147	78%
Use modern diagnosis	41	22%	144	78%
Know when and where to refer for specialist mental health care	155	77%	47	23%
Understand difference between culture specific diagnoses	63	38%	103	62%
Confident in consulting and working with traditional healer	36	20%	142	80%
Familiar with symptoms of culture specific diagnoses	60	35%	112	65%
Familiar with cultural beliefs concerning causes of mental illness	98	55%	81	45%

*Note.* Sample sizes for each item vary due to “don’t know” ratings.

\* *Agree* ratings were 4 (strongly agree) and 3 (agree).

*Disagree* ratings were 1 (strongly disagree) and 2 (disagree).

### **Health worker training in mental health**

Respondents indicated that they received a mean of 2.63 weeks of training devoted to mental health/psychiatry during undergraduate and postgraduate training. This ranged from no training to 10 weeks (Median = 2.00,  $SD = 2.53$ ). Some of the participants indicated they could not recall if they had any training in mental health.

Most respondents indicated 2 weeks training ( $n = 57$ ), followed by; 0 week ( $n = 47$ ), 1 week ( $n = 36$ ), 6 weeks ( $n = 33$ ) 8 weeks ( $n = 8$ ), 5 weeks ( $n = 6$ ) and 3 and 10 weeks ( $n = 4$ ).

Ninety-five of the 209 respondents indicated that they had a postgraduate qualification. However, 85% (81/95) indicated that none of their postgraduate training was dedicated to mental health topics. Four respondents indicated they received 40 weeks of postgraduate training and this group comprised specialist psychiatric nurses. The remaining 10 participants with postgraduate qualifications had received between 1 and 2 weeks training in mental health.

A one-way ANOVA assessing undergraduate weeks mental health training between HEO, NO and CHWs showed significant differences among the groups ( $F_{(2,206)} = 50.60, p < .001$ ). All Post hoc comparisons used Least Square Difference method. NO's received significantly more weeks of mental health training ( $M = 4.2, SD = 2.88$ ) than either HEOs ( $M = 1.6, SD = .89$ ) or CHWs ( $M = .89, SD = 1.15$ ). As noted the numbers of years general training for health worker positions are 3 years for HEO, 2 years for NO and 1 year for CHW, but results suggest that NOs receive more training related specifically to mental health. Given the wide range of mental health specific training and difficulties some participants had recalling the amount of mental health specific training they had received, we chose to analyse confidence by health worker position.

A one-way ANOVA assessing confidence in diagnosis between HEO, NO and CHWs was conducted. This revealed significant differences between health worker type and levels of confidence in diagnosis for modern disorders ( $F_{(2,199)} = 8.58, p < .001$ ), and culture specific disorders, ( $F_{(2,188)} = 4.54, p < .05$ ). Specifically, CHW's were significantly less confident with diagnosis of modern disorders compared to both HEOs and NOs, whereas for culture specific disorders, HEOs were significantly less confident than NOs. Similarly, CHWs were less confident using modern medications than both HEOs and NOs.

The assumption that a health worker speaking the local language is more familiar with the cultural beliefs concerning causes of mental illness and therefore more confident in making culture specific diagnoses was assessed. Sixty per cent ( $n = 125$ ) of participants could speak the local language of the area where they worked, whereas 40% ( $n = 83$ ) could not speak the local language. However, there were no significant differences between those who spoke the local language and those who did not with regard to confidence in diagnosing modern or culture specific disorders.

### ***Use of different treatments***

Table 3 provides mean ratings regarding use, confidence and familiarity with both modern and traditional culture specific treatments. The percentage of those rating "not at all" is provided in the far right column. These data suggest that modern medication is used by most with some degree of confidence, but 15% of respondents have difficulty with supply of psychotropic medications. Over half are not familiar with the traditional treatments used in their local area and 76% do not have any access to these treatment approaches.

Table 3  
 Mean use, confidence on familiarity with medication and traditional treatments

Item	<i>M</i> ( <i>N</i> = 209)	<i>SD</i>	Not at all %
Use of modern medication	3.11	0.96	6%
Confident in prescribing modern medication	2.99	0.94	8%
Get enough supply of psychotropic medication	2.43	0.93	15%
Familiar with traditional medicine used in your area	1.58	0.69	51%
Access to traditional treatment	1.33	0.68	76%

*Note.* Items were rated using a 4-point response format (1 = Not at all, 2 = A little bit, 3 = Somewhat and 4 = A great Deal).

One-way ANOVAs revealed no significant differences between health workers type (HEO, NO, CHW) and either familiarity or access to traditional culture specific treatments. However, there were significant differences between health worker types with regard to the amount they used modern medications ( $F_{(2,206)} = 13.73, p < .001$ ). HEOs indicated they used medications significantly more than both NOs and CHWs. NOs used medications more than CHWs. There were also significant differences between health workers with regard to their confidence in prescribing medications ( $F_{(2, 206)} = 29.16, p < .001$ ). CHWs were significantly less confident prescribing medications than both HEOs and NOs (all  $p < .001$ ). However, these findings may have in part been influenced by access to supplies of medications and/or levels of training in mental health.

There was a significant difference between health workers with regard to problems of supplies of medication ( $F_{(2, 206)} = 28.80, p < .001$ ) with HEOs' reporting significantly greater access to supplies of medication than both NOs or CHWs. CHWs' reported the most difficulty with supplies of medication. Finally there was a correlation between weeks of undergraduate training in mental health and confidence in prescribing medication with respondents receiving more training also reporting being most confident ( $r = .30, p < .001$ ).

### Discussion

The findings of this study indicate that health workers have relatively low levels of confidence in diagnosing both modern and culture specific mental disorders. Respondents also indicate a general lack of understanding and confidence in differential diagnoses or the difference between different types of modern and culture specific mental disorders. Despite some uncertainty between different culture specific diagnoses, over half the sample indicated they were familiar with cultural beliefs concerning causes of mental illness. A majority of respondents also indicated a lack of confidence in consulting and working with traditional healers but agreed that they knew when and where to refer to a specialist. The data may suggest that while health workers are aware of general cultural beliefs in the population regarding causes of mental illness, they are not confident about differential types of culturally bound mental health problems. This may in part be due to the wide range of idiosyncratic beliefs and presentations from community to community, or simply due to the lack of clear differential characteristics. Whilst this may have flow on effects in terms of their confidence working with traditional healers, this lack of confidence may also be a function of the at times secretive and taboo nature of some traditional healing practices. Low levels of confidence in diagnosing mental illness are likely to be at least in part due to the

complexities created by the cultural diversity of PNG where there are an estimated 800 language groups. Such cultural-linguistic factors are likely to play an important role in influencing concepts, perceptions and experience of symptoms that flow on to making a diagnosis and treatment decisions. Sinclair (1957) and others (Burton-Bradley, 1973; Robin, 1979; Stavovy, 1996) found that the beliefs of Papua New Guineans' concerning the causes of mental illness complicate the diagnostic process thus making it difficult to arrive at a specific diagnostic formulation (Ng, 1997). For example, low levels of confidence in diagnosing schizophrenia may be explained by cultural phenomenon such as dreaming and visions that complicate the establishment of symptoms such as hallucinations and delusions. A further potential contributing factor is the general lack of distinction between various forms of psychotic illness classified in Pidgin as "longlong" meaning "crazy"

In addition to the above factors, the results of this study indicate the need for more comprehensive preparation and training of health workers during basic/undergraduate training. Current undergraduate training programs for HEO, NO and CHW devote very little time to modern and traditional mental health issues. These inadequacies are reflected in the low level of health workers' confidence in distinguishing between different types of mental disorders, a lack of confidence in making a diagnosis, and a lack of knowledge of alternative treatment approaches. As a consequence it is more likely that the patient will be referred to a limited range specialist services or they will be left to their family to provide care. In many cases families manage to maintain and care for their mentally ill relative in their communities without assistance from the health care system. It is only when the individual concerned becomes aggressive or violent that referral to specialist services is needed. When this happens the patient is almost always referred to the local hospital for management and in extreme cases to Laloki Psychiatric Hospital in Port Moresby.

Respondents also reported that they use modern medication more frequently than traditional treatments. However, use of modern medication differs by health worker types. HEOs are confident in using medication and prescribe medication more frequently than both NOs and CHWs. HEOs also have greater access to supplies of medication and as a consequence are more likely to use them. Nursing Officers are less confident in prescribing and using medication than HEOs but they are more confident than CHWs. This may be in part due to different levels of training of the groups with NOs receiving significantly more training in mental health than either HEOs or CHWs. Finally, CHWs are least confident in prescribing and using medication and also have significantly less training in mental health and indicate they have the poorest access to supplies of medication.

As mentioned above, more than half the respondents reported they were familiar with culture specific diagnoses yet they were not confident in approaching traditional healers. This may be attributed to a number of factors. Firstly, traditional healers may be reluctant to collaborate with health workers who they may view as competitors. The practice of traditional healing is an important means of income and therefore traditional healers may be reluctant to share their expertise with others. Secondly, the use of some forms of traditional healing such as sorcery, witchcraft and magic is explicitly prohibited by government policy. This may create barriers for mental health workers in cases where traditional healers also practice sorcery and witchcraft. Finally, health workers may be reluctant to refer patients to traditional healers because of fear that they may suffer some form of misfortune as consequence of, for example, violating a taboo.

In summary, the absence of specialist mental health resources at a provincial and district level means that general health workers will continue to be called upon to deliver the bulk of mental health care in Papua New Guinea. This situation is unlikely to change in the short term. As a consequence there is a pressing need to better prepare health workers to manage mental health problems in their basic training and to follow this up with ongoing support and supervision once

they have entered the workforce. A major finding of the study is that CHWs who have arguably the most contact with people suffering from mental illness in their local communities, also have the least mental health training and poorest access to medical supplies. Based on the findings of this study, it is suggested that CHWs training should be improved to carry out mental health promotion and prevention activities at the primary care level. The training should include; detection of early signs and symptoms of mental disorders, basic skills in psychiatric first aid and provide guidelines on working with families, traditional healers and when to refer to specialist services.

The results of this study indicated low levels of confidence in identifying and diagnosing different categories of mental illness by general health workers. Whilst health workers seemed most confident with diagnosing modern versus traditional culture specific disorders, they had more difficulty with differential diagnosis amongst the modern disorders. Just over half agreed that they were familiar with cultural beliefs concerning causes of mental illness but only 20% felt confident in working with traditional healers on mental health issues whereas around 77% agreed they knew when to refer for specialist mental health care. The relative lack of confidence with regard to many aspects of assessment of mental health problems may have been a function of highly variable levels of mental health specific training amongst the different categories of health worker. In general, CHWs received the least mental health specific training and tended to be less confident than both HEOs and NOs with regard to a range of mental health assessment and treatment activities. CHWs tended to use modern medication less than other health workers but this may have been related not only to their training, but poor access to adequate supplies of medications. There were few differences between health worker types with regard to familiarity or access to traditional culture specific treatments. The study highlights the need for ongoing training of health workers in mental health assessment and interventions. In particular, there is a need for clearer guidelines regarding incorporation of modern systems of diagnosis with cultural understandings of mental illness for clinicians in the field. Similarly, more detail is needed about how to collaboratively work with family and traditional cultural healers and at the same time integrate psychotropic medications into a comprehensive treatment approach. General health workers will continue to provide a significant level of care for Papua New Guinea's mental health needs. Consistent with the recommendations of the WHO (1982) there remains a need to retrain general health professionals where existing mental health services and other resources are limited. The PNG Health Department's policy on promoting traditional medicine can also be supported by making a focus of this training on how to best integrate psychopharmacological and traditional culturally based mental health approaches.

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