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Comorbidity of Physical and Mental Health Problems in Gilgit-Baltistan (GB), Pakistan

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In the present study, the comorbidity of physical and mental health problems in Gilgit-Baltistan (GB), a mountainous society under the three highest mountain ranges of Pakistan, was assessed. It was hypothesized that there would be comorbidity between physical and mental health problems in GB. To test the research hypothesis 256 (113 men & 143 women) patients with various physical complaints were assessed for their mental health problems using mental health inventory. Study findings through the application of one sample t-test revealed that women during their pregnancy reported higher level of mental health issues and patients with headaches were also prone to develop anxiety symptoms. Patients with other physical complaints such as; stomach issues, dental issues, visual problems, cardiac issues, and anemia reflected a good level of mental health. The gender of participants also tended to influence their mental health that is women reported more anxiety, depression, and loss of behavioral/emotional control when compared with men. Therefore, it is recommended to address the factors, which lead women to develop psychological problems generally and during their pregnancy particularly.
Keywords: Comorbidity, Gilgit-Baltistan, physical problems, mental health problems

The term comorbidity denotes the existence of more than one illness at a time; either more than one psychological problem or psychological and physical condition and it is more common among those with mental health problems (Australian Institute of Health and Welfare, 2012). Research findings revealed strong comorbidity between physical

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and mental conditions, its impact on the severity of both conditions, and the functioning of individuals (Merikangas et al. 2015), but it is a neglected area by public health authorities and medical educators (Sartorius, 2013).

Psychological attributes are specific to particular physical illnesses (Cassileth et al., 1984). The most comorbid psychological problem with physical conditions is anxiety (Australian Institute of Health and Welfare, 2012). According to Sartorius (2013), people having chronic diseases such as; cancer, cardiovascular illness, and diabetes are at higher risk to develop mental health problems. Other researchers reported different medical conditions as comorbid illnesses with mental health problems. For example, anxiety and depression were associated with irritable bowel syndrome and ulcerative colitis indicating that chronic gastrointestinal illness affects psychological behavior (Shah et al., 2014). Infectious diseases; whooping cough, scarlet fever, and diphtheria were related to the increased prevalence of anxiety disorders (Witthauer et al., 2014). There is a higher chance of anxiety and other affective disorders among migraine patients when compared with the experimental group (Antonaci et al., 2011). Older patients with visual impairment have a broader level of mental health comorbidities when compared with those without visual impairment (Court et al., 2014). Pregnancy increases women's vulnerability to psychiatric illnesses such as anxiety disorders, depression, eating disorders, and even psychosis (Carter & Kostaras, 2005). Iron deficiency increases the risk of psychiatric disorders (Chen et al., 2013). In addition to the physical malady, the diagnostic time is also important in one's mental health. For example, individuals with recently diagnosed diseases reported poor level of mental health as compared to individuals with a long illness history because over time they develop psychological adaptation (Cassileth et al., 1984). Other researches revealed that patients with more severe mental health conditions like; schizophrenia, depressive, and bipolar disorders have excess mortality due to their comorbid physical illness (Hert et al., 2011). Such a finding indicates that comorbidity is the reciprocal interaction between both conditions.

Scientific understating of comorbidity between physical and mental disorders is important because the specific pattern of comorbidity has an imperative association with etiology (Merikangas et al. 2015).

Familiarization with comorbidity helps not only in the understanding of etiology but is also useful in the treatment because comorbidity usually leads to a low level of treatment adherence (Taj Court et al., 2008). Additionally, individuals with multiple disorders had greater rates of hospitalization, poor quality of life, were more disabled, and need to munch more health resources than those with only a single condition (Australian Institute of Health and Welfare, 2012).

On the one hand, comorbidity facilitates the understanding of etiology and on the other hand, it sets certain challenges for clinicians in form of delayed diagnoses and treatment that result in tragic consequences including shorter life expectancy. This is the main reason why people with schizophrenia have twenty years shorter life expectancy as compared to people without schizophrenia because of their unrecognized and untreated physical illness (Sartorius, 2013).

In Pakistan, there is a dearth of scientific literature regarding comorbidity between physical and mental disorders; however, Hussain Court et al. (2008) found that around half of tuberculosis patients met the criteria for anxiety and depression. Patients' negative illness perception was associated with their mood symptoms and their perceived poor control over the illness independently predicted their poor adherence to treatment (Taj et al., 2008).

In addition to the comorbidity between physical and mental health problems, it was also important to understand the role of participants' gender as an important demographic variable in their mental health. In the published study from the same geographical region, women reportedly had poor mental health as compared to men (Najam & Hussain, 2015).

Based on the reviewed literature, it is concluded that the knowledge of the comorbidity of physical and mental health conditions is necessary for better recognition and treatment of either condition or both. Therefore, this study was intended to measure the mental health problems of patients with various physical illnesses. The study will serve as a source of awareness for clinicians regarding the importance of comorbidity between both conditions and attract their attention to the neglected aspect of the medical regime in GB, Pakistan that ultimately results in better care of inflicted people. Furthermore, dealing with the challenge of comorbidity

will help to improve the image of mental health professionals by enhancing the efficacy of their services to society.

The following hypothesis was developed to test in this study; There would be comorbidity between physical and mental health problems in GB.

Method

Study Design

This is a descriptive study that was intended to measure the comorbidity of physical and psychological problems in Gilgit-Baltistan, Pakistan.

Participants

A non-probability purposive sampling strategy was used to choose the study sample because the research objective was to assess the level of mental health among people visiting hospitals for the treatment of various physical complaints.

A total of 256 patients with various physical complaints were approached at the outpatient departments of hospitals throughout Gilgit-Baltistan. The majority of participants (55.9%) were women and married (63.3%), their ages ranged from 15-80 with a mean age of 28.33 (SD=11.67) years, and they were representing all districts of GB with the following distribution; 23%, 12.1%, 11.3%, 13.7%, 10.9%, 14.1%, and 14.8% from Gilgit, Hunza-Nagar, Skardu, Ghanche, Ghizer, Astor, and Diamer districts respectively. Illness based distribution of participants was; 78 (30.5%), 41(16%), 64(25%), 4(1.6%), 34(13.3%), 19(7.4%), 12(4.7%), and 4(1.6%) with fever, stomach related problems, headache, heart problems, pregnancy, eye problems, teeth problems, and anemia. The highest education attained by participants was post-graduation at 7%, graduation at 14.1%, higher secondary at 18%, and secondary at 36.3%.

Measures

Mental Health Inventory (MHI). To measure patients' level of mental health, a structured interview was conducted using Mental Health Inventory (Viet & Ware, 1983). This Likert type scale consists of 38 items, which assess the continuum of the mental health; psychology distress (anxiety, depression, & loss behavioral/emotional control) and psychological wellbeing (general positive affect, emotional ties, & life

satisfaction). The aggregated scores on both scales create participants' global mental health index. MHI had a good level of reliability and validity, i.e. highly loaded two factors (psychological distress & psychological well-being) along with convergent validity (Everson-Rose & Lewis, 2005; Zautra, et.al, 1988). Alpha levels for the current study were; .72, .7, .71, .7, and .4 for anxiety, depression, loss of behavioral/emotional control, general positive affect, and emotional ties respectively.

Procedure

The research objectives were discussed with health Directors of the Gilgit and Baltistan region to obtain their consent to conduct the study. After getting verbal consent from patients; male researchers collected data from male patients and female researchers from female patients. Urdu was used as a medium of language to conduct the structured interview. Patients with severe physical illnesses and mental disabilities that hindered their capacity to respond were excluded from the study. Techniques of descriptive (mean & standard deviation) and inferential statistics (one-sample t-test & two-sample t-test) were used to analyze the collected data. In two categories; heart problems and anemia, there were only four participants in each category so we could not apply inferential statistics. Keeping in view the ethical consideration, study participants were ensured about the confidentiality of their information. They were also informed that the collected data would be used only for research purposes. Participants had the right to leave the study at any stage/time.

Results

To infer whether patients with different physical illnesses have mental health problems, we have defined the mid-point of each scale as cut-off scores (population mean) and our sample mean was compared with the population mean (table 1).

Our findings (table 1) indicated that women with pregnancy-related issues showed more anxiety, depression, and loss of behavioral/emotional control. The second category of patients, i.e. headache patients also reported higher levels of anxiety. Patients with other physical illnesses such as fever, stomach-related problems, eye problems, and teeth problems

reported lower depression, anxiety, and loss of behavioral/emotional control. All patients reported a higher level of psychological well-being in terms of general positive affect, emotional ties, and life satisfaction irrespective of their physical illness. In two categories; heart problems and anemia, there were only four participants in each category so we could not apply *the t-test* but their descriptive scores revealed that they have a lower level of anxiety, depression, and loss of behavioral/emotional control and a higher level of general positive affect, emotional ties, and life satisfaction, however.

To rule out whether participants' gender influences their current level of mental health, *an independent t-test* was applied. Results indicated that (table 2) women showed more mental health problems; anxiety, depression, and loss of behavioral/emotional control when compared with men. However, the gender difference was not statistically significant in the positive attributes of mental health as measured by general positive affect, emotional ties, and life satisfaction.

Discussion

In the present study, we assessed the comorbidity between physical illness and mental health-related problems in GB. Our findings indicated that pregnant women reported more depression, anxiety, and loss of behavioral/emotional control. Karmaliani et al. (2009) also reported the same findings in Pakistan where anxiety and depression are commonly occurring symptoms during pregnancy. Other researchers reported similar findings across the world where 18% of women reported depressive symptoms and 13% met the diagnostic criteria for major depression during their pregnancy. In Japan, women met the diagnostic criteria for major depression, generalized anxiety disorder, and social and specific phobia during pregnancy (Gavin et al., 2005; Kitamura et al., 2006). In the United States, 9% of women reported depressive symptoms during the antenatal period (Rich-Edwards et al., 2006). Among Swedish women, the prevalence of prenatal depression was ranged from 13.7% to 29.2% (Andersson et al., 2006; Rubertsson et al., 2005). A cross-sectional study conducted in Brazil found that 59.5% of women reported anxiety and

19.6% found to have depression during their pregnancy (Faisal-Cury & Rossi, 2007).

In this study, participants with headache problems also reported a significant level of anxiety. Other researchers reported consistent findings. For example, patients with various types of headaches (migraine & tension-type etc.) reported a significant level of anxiety (Beghi et al., 2007; Beghi et al., 2010). According to Juang et al. (2000), psychiatric comorbidity is most common in patients with chronic daily headaches.

In the present study, patients with general fever, eye-related issues, and dental problems were not found to have mental health problems but existing literature provides contradictory evidence. E.g. Court et al. (2014) found that visually impaired patients were more likely to have mental health problems as compared to individuals without visual impairment. Meta-analysis findings also revealed that individuals with mental health problems were more likely to have dental issues as compared to the general community (Kisely et al., 2011). In the same line, Witthauer et al. (2014) found that people with fever including coughing reported lower levels of mental health and quality of life. The possible reason behind this contradictory evidence may be that our participants reported manageable forms of the eye and dental issues and general fever. In the present study, patients with severe physical problems were not included as exclusion criteria because they would not be able to respond to the interviewer.

Psychological problems (anxiety, depression, and stress) tend to play an important role in heart diseases (Khayyam-Nekouei et al., 2013). Likewise, Walters et al. (2002) reported overlapping symptoms of anemia and depression but in the present study cardiac patients and anemic also reported a good level of mental health. The underlying reason for these contradictory findings may be that there were only four cases in each category in the present study.

The gender of research participants was also analyzed to assess its influence on their mental health. Findings revealed that women reported higher psychological distress; anxiety, depression, and loss of behavioral/emotional control when compared with men. Najma and Hussain (2015) reported consistent findings from the same area where

females reported higher anxiety, depression, and loss of behavioral/emotional control as compared to males.

Conclusion, Limitations, and Recommendations

Based on our findings, it is concluded that females are more prone to develop psychopathology during pregnancy and people with headaches are likely to have anxiety symptoms. Overall, the female gender is also a risk factor for psychopathology.

The major limitation of the study is that there were only four heart and anemic cases so inferential statistics were not applied and the conclusion was based on only descriptive findings. Additionally, the study also didn't address the factors why women are more likely to have mental health issues in general and especially during pregnancy. Therefore, it is recommended to conduct future studies by addressing the risk factors for women's mental health during pregnancy. Furthermore, it is also recommended to include a large sample size with cardiac problems and anemia.

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Table 1

Comparison of sample mean with population mean on anxiety, depression, loses of behavioral/emotional control, general positive affect, emotional ties and life satisfaction (N = 256)

Patient Category	Variables	Population Mean (μ)	Sample Mean ($\bar{x}$)	Standard deviation	*t*	*p*
Fever	Anxiety	27	28.29	7.7	1.47	.20
	Depression	12	12.5	2.8	1.57	.10
	Loss of Behavioural/ Emotional Control	27	21.9	5.8	7.8	.00
	General Positive Affect	30	40	5.3	16.6	.00
	Emotional Ties	6	9.2	2.1	13.9	.00
	Life Satisfaction	3	4.8	1.1	14.4	.00
Stomach related problems	Anxiety	27	29	7.1	1.8	.10
	Depression	12	13	2.5	2.56	.02
	Loss of Behavioural/ Emotional Control	27	24.9	7.9	1.7	.10
	General Positive Affect	30	38.4	5.2	10.37	.00
	Emotional Ties	6	8.8	2.1	8.75	.00
	Life Satisfaction	3	4.6	1.1	9.4	.00
Headache	Anxiety	27	30	7.6	3.15	.00
	Depression	12	13	3	2.66	.01
	Loss of Behavioural/	27	24	7.1	3.38	.00

	Emotional Control					
	General Positive Affect	30	40.1	6.4	12.6	.00
	Emotional Ties	6	9.6	2.2	13	.00
	Life Satisfaction	3	4.6	1.3	9.8	.00
Heart Problems	Anxiety	27	27.7	6.4		
	Depression	12	11.7	3		
	Loss of Behavioural/ Emotional Control	27	21	5.6		
	General Positive Affect	30	35.5	4.9		
	Emotional Ties	6	8.5	2		
	Life Satisfaction	3	5	.8		
Pregnancy	Anxiety	27	30.5	7.6	2.69	.01
	Depression	12	13.8	2.7	3.91	.00
	Loss of Behavioural/ Emotional Control	27	23.8	7.3	2.56	.02
	General Positive Affect	30	41.7	6.2	11	.00
	Emotional Ties	6	9.4	2.3	8.7	.00
	Life Satisfaction	3	5.3	.9	14.9	.00
Visual Problems	Anxiety	27	29	8.8	.9	.40
	Depression	12	12.3	2.3	.5	.50
	Loss of Behavioural/ Emotional Control	27	24	8.9	1.47	.20

	General Positive Affect	30	41.3	7.2	6.8	.00
	Emotional Ties	6	9	2.7	4.8	.00
	Life Satisfaction	3	4.2	1.4	3.7	.01
	Anxiety	27	28.5	9.1	.4	.50
	Depression	12	13.5	3.3	1.1	.30
Dental Problems	Loss of Behavioural/ Emotional Control	27	23.5	6.6	1.31	.20
	General Positive Affect	30	41	4.5	6	.00
	Emotional Ties	6	9.5	2.2	3.9	.01
	Life Satisfaction	3	4.7	1.2	3.4	.01
	Anxiety	27	29.5	9.2		
	Depression	12	12.2	2.3		
Anemia	Loss of Behavioural/ Emotional Control	27	22.2	10		
	General Positive Affect	30	42.5	6.6		
	Emotional Ties	6	9	2.9		
	Life Satisfaction	3	4.2	1.2		

Note: * is significant at .05 & ** is significant at .01

Table 2

Gender differences in anxiety, depression, loss of behavioral/emotional control, general positive affect, emotional ties, and life satisfaction (N = 256)

S. No.	Variables	Men (n=113)	Women (n=143)	*t*	*p*
		M(SD)	*M(SD)*		
1.	Anxiety	26.9(7.5)	30.9(7.3)	4.3	<.00**
2.	Depression	12.2(2.8)	13.4(2.7)	3.3	<.00**
3.	Loss of emotional/behavioral control	21.1(6)	25.1(7.3)	4.6	<.00**
4.	General positive affect	40.8(5.8)	39.5(5.9)	1.7	>.05
5.	Emotional ties	9.2(2.2)	9.2(2.2)	.01	>.05
6.	Life satisfaction	4.7(1.4)	4.8(1.2)	.03	>.05

Note: * is significant at .05 & ** significant at .01.