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PROMOTING MENTAL HEALTH CARE IN PAKISTAN WITH "LADY HEALTH WORKER APPROACH"

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ABSTRACT

Objective:Mental health disorders contribute a major part of global disease burden. Statistics of 2016-17 show that globally, around 450 million people are suffering from mental diseases that constitutes 14% of the total disease burden. In Low- and Middle-Income Countries (LMIC) like Pakistan, mental health issues are somewhat ignored due to limited resources and lack of awareness. Objective of this review to analyze what are the current policies in Pakistan for mental health care and how Lady health workers can contribute to mental health care?

Method: Research question and search terms were designed following PICOS. This is a literature review following extensive online database search using EBSCOhost, PUBMED, CINHAL ultimate and online library

Results: Lady Health Workers are the most prominent cadre in delivering primary health care. LHWs fight the discrepancy in the rural areas and the lack of awareness in the rural community by delivering services at the doorstep. LHWs cover almost 60% of the rural population.

Conclusion: LHWs can work vertically with reproductive as well as mental health programmes at a time within limited budget cost-effectively. However, this integration program needs proper knowledge, skills and training program designed and implemented. **Keywords:** Mental health care; lady health worker; Pakistan; mental disease burden; depression during pregnancy.

1. INTRODUCTION

According to the definition of "Health" by WHO which states that health is a combined total wellbeing of physical, social as well as mental state, not just absence of any disease or illness. Thus, mental health is an integral part of health, there is no health if there is no mental health. Moreover, mental health does not mean just absence of mental disorders (WHO). Mental health disorders contribute a major part of global disease burden moreover, the burden on the economy due to mental illness is far more than due to the general illness (Malik & Khan, 2016). Statistics of 2016-17 show that globally, around 450 million people

are suffering from mental diseases that constitutes 14% of the total disease burden (Syed S. Hussain, 2018). High income countries have somewhat designed policies and programme to promote mental health but in Low- and Middle-Income Countries (LMIC) like Pakistan, Governments are still struggling to fight maternal, child and neonatal mortality, morbidity and infectious diseases. In such countries, thus mental health issues are somewhat ignored or less analyzed leading to rapidly increasing prevalence of mental health disorders (Malik & Khan, 2016).

2. Methodology:

This personal review has followed PICOS strategy and online research of articles through different databases like EBSCOhost data base, using PUBMED, CINHAL ultimate and online library. Different keywords were used for search terms for example; "Mental health care", "lady health worker", "Pakistan", "mental disease burden", and "depression during pregnancy". Articles published since year 2000 were included. English language

and human population are the inclusion criteria. Articles with mental health care policies in any state other than Pakistan were excluded.

3. Research question:

"Do Lady Health Workers help to promote Mental Health Care in Pakistan, and what are the factors influencing the effects of LHWs on mental health care in Pakistan?"

Search strategy: **PICOS**

P	Pakistani population, majorly female population
I	Lady Health Workers
C	None
0	Mental health Care
S	Narrative Review, qualitative analysis

STARLITE:

- **S:** Selective: all relevant data will be assessed that is published within last 20 years.
- **T:** Type of study: Narrative review of all articles to the research question; qualitative analysis.
- A: Electronic database, EBSCOhost e-library, PUBMED and google scholar search
- R: Range of years: 2000-2024. All articles published from 2000 to 2024
- L: Literature published between 2000-2024, peer reviewed.
- Lady health workers in Pakistan
- Mental health care in Pakistan
- Published in English language by humans.
- IE:

Inclusion criteria	Exclusion criteria
Must be in English	Any language other than English
• Consists of data of Regarding	Data of any other state / country
mental healthcare in Pakistan	not peer reviewed
Pregnant Women	published in older time line
Women of child-bearing age	irrelevant data
Postpartum depression	Severe mental disorders
 Lady health workers 	Psychiatric treatments are not included
• Published within last 20 years	Mental problems in childrens
	• Role of Lady health workers in other health care
	programs

Search terms:

your on tornist				
Key Words	Alternative MeSH Terms			
Mental health care	"maternal deaths" or "pregnancy related deaths"			
Lady Health Workers	<u>"LHW"</u>			
Pakistan	"Pakistan"," Islamic Republic of Pakistan"			
Pregnant women	"women of child-bearing age" "child-bearing women"			
Postpartum depression	Depression in women after child birth			

Combined with "AND"

4. Result:

5. Mental Health Care in Pakistan:

Pakistan, with its large population of 220 million, is the sixth most populous country in the world. Pakistan is an important contributor towards the global disease burden, also regarding mental health disorders. WHO global health estimates 2017 show that more than 24 million people from Pakistan's population are suffering from some mental diseases (Salima Muhammad Farooq, 2020). Majority of the population is young and more than 63% of the population lives in rural areas and almost 45% of the total population lives below the poverty line with less-developed or no mental care services (Dayani, 2023; Malik & Khan, 2016). Thus, Pakistan's Public Mental Health must be analyzed in relation with other social, economic and psychological determinants. Pakistan shows high prevalence of anxiety and depression disorders (Hassan Khan, 2007). A review in 2004 presented that the total prevalence of anxiety and depression in Pakistan was 34% that is still increasing. Interestingly, prevalence of anxiety and depression has higher rates among women (29-66%) as compared to men (10-33%). There is also an increase in substance abuse and drug addiction. Studies from 2014 estimated that around 3 million people are drug addicts in the country. There has also been an increase in suicide rates in the country with the crude suicide mortality rates from 7.5 to 8.9 per 100,000 population in 2019 with higher rates amongst women than in men. Moreover, some severe mental health disorders like schizophrenia and bipolar disorders account for 1-2% of the total population. Studies in 2013 showed that Child mental health disorders have high prevalence constituting around 16% of the population and the number is still increasing (Bank; Malik & Khan, 2016).

6. Challenges for Mental Health Care in Pakistan:

Pakistan is facing many challenges especially in terms of health care, physical, emotional and mental health. Pakistan has one of the highest prevalence of mental health disorders but with least consideration for mental health care because of political, social, economic instability (Sikander, October, 2020). Pakistan has a very low budget for health care expenditure as 1.4% of total GDP and

from this total health care expenditure, only 0.4% is allocated for public mental health care (Finance Division, 2023). Along with this low budget, high prevalence of mental disorders in Pakistan is also associated with other social determinants like poverty, poor housing conditions, education, less mental literacy and unequal, less or no access mental health care services (Syed S. Hussain, 2018). A study in 2011 showed that more than 30% of the population lack access to good health care, quality of life, quality education and good housing conditions. This discrepancy is even more in rural areas where 37.7% population lack access to good health care, education and improved quality of life while 13.3% for urban areas (WHO MENTAL HEALTH GLOBAL ACTION PROGRAMME (mhGAP) SITUATION ANALYSIS OF PRIMARY HEALTHCARE SYSTEM PAKISTAN, Dec 2016). There is also a huge shortage of health care providers in Pakistan i.e., for a population of more than 220 million, there are only 500 psychiatrists available (Sikander, October, 2020). The country consists of only 4 large psychiatric hospitals for mental health care and only 654 units in general hospitals for psychiatric care. This number is very low thus almost 90% of the population with mental health problems remain untreated due to no access or provision of mental health care (S Mudasser Shah, 2022). As a result of differences in rural and urban areas, most psychiatrists are working in the urban areas and leaving the large portion of population living in the rural areas untreated and undiagnosed. The psychiatrist to population ratio is 1 for 0.5 or 1 million people and likely the number of psychologists is also very low. Bed to population ratio in the mental hospitals is 1.9 beds per 100000 population. Moreover, these hospital and mental health care facilities are mostly located in the urban regions (Syed S. Hussain, 2018). One of the biggest challenges for Pakistan is lack of awareness and very less education regarding mental health problems (Suhail, 2005). Large number of population, especially in the rural areas recognise "mental health disorders" as some "spiritual / super natural act of some forces" and to treat this people seek help from religious healers known as "peer" (Balaji, 2022). Moreover, Pakistan is also struggling to promote gender equality but the progress is still very slow. Studies reported that there is higher prevalence of anxiety in women as

compared to men (Siddiqui & Khan, 2021). This is owing to hostile family culture, lack of independence, lack of family support, early marriages and financial dependency on the family leaders (Hassan Khan, 2007). Literacy rate is also unequal among the men and women i.e., 69% for men and 45% for women (Javed, 2023).

7. Mental Health Care Policies in Pakistan:

To fight these challenges and to promote mental health care, Pakistan has designed some programs and policies. Since 2013, highly endorses the Global Mental Health Plan (mhGAP) proposed by The World Health Organization. Being a member of United Nations, Pakistan has also agreed to the Sustainable Development agenda and is currently working on achieving SDGs and its targets (WHO *MENTAL HEALTH GLOBAL* **ACTION** PROGRAMME (mhGAP) SITUATION ANALYSIS OFPRIMARY *HEALTHCARE* **SYSTEM** PAKISTAN, Dec 2016). Pakistan's Ministry of National Health Services, Regulations and Coordination (NHSRC) is mainly responsible for governing the provision and regulation of medical health care services, including mental health services (Dayani, 2023).

Ministry of National Health Services, Regulations and Coordination proposed a National Health Vision 2016–2025, in which Pakistan has launched a Universal Health Care Program (UHC). UHC is responsible to ensure equal provision and access for health care services, also including mental health care services for everyone in the population, without any difference or discrepancy (Pakistan, 2016). Different Initiatives were launched under this UHC program including Sehat Sahulat Card, different insurance schemes and the Essential Package of Health Services (EPHS) ("Advocating for better mental health policies in Pakistan.," 2023). EPHS offers health care services regarding reproductive, maternal and child care, noncommunicable as well as infectious diseases with respect to the budget and economy of the state. Moreover, all expenses for mental health care services are included in this package (Dayani, 2023). As Pakistan is facing huge shortage of health care service providers in all departments of health, Pakistan has proposed a plan to merge all health care professionals with some training to increase the overall cadre of health care service

providers (Pakistan, 2016). A study in 2020 during Covid also suggested that to fight this shortage of mental health care professionals, there must be a training program that will be responsible for training general health care providers regarding basic psychological care so they can help diagnosing mental health problems and assisting patients to reach a mental health care expert (Salima Muhammad Farooq, 2020). Moreover, consolidation of mental health care in Primary Health Care in Pakistan is also under consideration and implementation. Under this strategy; different programs have been initiated by the private sector: 4.1 IMPACT initiative:

IRD (Interactive Research & Development) implemented this program funded by GCC. IMPACT is the program for Integrating Mental Health Through Primary Care and Community Ties. Primary care partners are the SINA Health, Zubaida Machiyara Trust (ZMT), Indus Hospital and Health Network (IHHN) and Education & Welfare Trust (Dayani, 2023).

IRD also launched another community-based program for promoting mental health care, known as The Pursukoon Zindagi Program. This program was supported by Taskeen, Sehat Kahani, Savaira and British Asian Trust. The program was focused on promoting mental health care and increasing awareness regarding mental health disorders among the general community through different campaigns on social media, television, radio and mental health camps (Dayani, 2023).

4.2 General Practitioner Training Program:

It involves a basic 6-month training program for general health care practitioners regarding mental health care to promote mental health and to increase awareness about mental health problems among the patients (GIHD).

4.2.1 Digital Platform for mental health care:

To provide online platform for patients to seek mental health care advice and to get help in the worst time of their mental stress (Dayani, 2023). Different non-profit organizations are working on this program like Taskeen Health Initiatives ("Taskeen-Sehatmand Pakistan,").

In 2019, President of Pakistan Dr Arif Alvi also launched a program to promote the mental health care and to decrease the morbidity due to mental health disorders. This program is based on Lancet Commission on Global Mental Health, focusing on

decreasing the mental disease burden by preventing mental health disorders and promoting mental well-being. Two initiatives are implemented by this program: (Mirza & Rahman, December 21, 2019)

- 1. Integration of mental health care in the training program for Community health Workers.
- 2. School based mental-health programs, that include promoting awareness regarding mental health and mental illness among the students, their family and friends who even do not attend the school (Mirza & Rahman, December 21, 2019).

8. Integration of Mental Health Care programs with Community Health Worker Program:

Pakistan has very high prevalence of Common Mental Disorders as 34% with highest prevalence of depression i.e., in 2013, studies estimated that 154 million people are suffering from depression and this number is still increasing. Depression mostly remains undiagnosed and severity leads to high suicide rate. According to statistics in 2013. every year around 877,000 die due to suicide and World Bank Data shows consistent increase in this suicide rate. This alarming prevalence of mental health disorders in Pakistan is due to many social, economic, political and cultural factors (Ali & Gul, 2018). Owing to low budget, cultural stigmas, misbeliefs, urban-rural discrepancies, and lack of awareness about mental health issues; Pakistan has now adopted the most feasible policy of horizontal integration of mental health programs with the existing primary health care system. It is quite feasible in comparison with developing a new parallel mental health care initiative (Irfan, 2013). In many Low- and Middle-Income countries (LMIC) like Iran, Brazil, Uganda, India, Mental health care has been improved by effective integration of mental health care programs with the Primary Health Care (Syed S. Hussain, 2018). Community Health Workers are a very important part of Primary Health Care in Pakistan and in this team of Community Health Workers, Lady Health Workers are the most prominent cadre. Considering the rural-urban health inequalities and lack of access to mental health centers, Lady Health workers offer services in various health care departments without costing any extra burden on economy (Ali & Gul, 2018). LHW program was initiated in 1994 by the Government of Pakistan

with a purpose to deliver equal health care access to everyone in the community level at the doorstep. especially in the ignored and less developed rural areas. Almost 100,000 Lady Health Workers are selected, recruited and trained through this program (Ilyas, January 27, 2024; Wazir, Shaikh, & Ahmed, 2013). LHWs are mostly females, selected from the local community with minimum 8-year education. After recruitment, these LHWs are provided with on-school and on-the-job training of total 15 months. Every one LHW is responsible for connecting with 1000 people in the local community (Fauziah Rabbani, 2023). LHWs are primarily responsible for promoting health education and awareness in the community by delivering door-to-door service. LHWs fight the discrepancy in the rural areas and the lack of awareness in the rural community by delivering services at the doorstep. LHWs cover almost 60% of the rural population. LHWs provide basic preventive and curative health education regarding Maternal health, child health, family planning and rehabilitation services (Fauziah Rabbani, 2023). Recently, it is proposed by the Government of Pakistan that mental health care program should be added in the training syllabus of the LHWs to decrease the prevalence of mental health disorders (Mirza & Rahman, December 21, 2019). For this training regarding mental health care services, WHO's Mental Health Gap Intervention Guide (mhGAP-IG) can be adopted. Different sates like Rural Rwanda have shown cost-effective and efficient responses after training their community health workers according to WHO's mhGAP guide to decrease mental illness prevalence (Fauziah Rabbani, 2023). In 2014, cost-effective results were observed when mhGAP guides were adopted to train primary health care physicians in Pakistan to provide basic mental health care to the displaced tribal community of conflicted region - North Waziristan (Humayun et al., April 2017).

5.1 Strengths of LHW-mental health care integration:

A study by Unaiza (2004) provides a general statistical perception that in Pakistan, due to gender inequality, cultural practices, norms and societal perceptions, prevalence of mental disorders is more in women than in men. Women suffer from physical abuse as well as mental abuse due to less

awareness about their rights, less opportunity to access education, health care, to take decisions of their life, to live independently, to be strong. Forced marriages, family abuse, divorce stigmas, infertility stigmas also lead to increased mental stress leading to depression, anxiety and other mental disorders in women. These also lead to increased stigmas and misconceptions regarding mental disorders as some spiritual events and thus there is lack of awareness and women never contact any mental health care provider to seek help (Niaz, Feb 2004). LHWs are responsible to promote health care education and awareness into the community by connecting with the local people, in their local language, removing any social or cultural barrier with the patient. LHWs can convey their message much more effectively to the community using their connection or social relationship with them as compared to any other outsider health care provider. Being a country with strong community bonding and social relationships within a community, in Pakistan, Community Health Workers can provide cost-effective results regarding mental health promotion and awareness (Ali & Gul, 2018). LHWs can also fight the stigma of female patients seeking help from male therapists in Pakistan and also there is no extra burden of initiating a new mental health program but just enhancing and intervening current door-todoor service for promoting physical, emotional and mental well-being (Ali & Gul, 2018). Integration of mental health services with LHW training program is a cost-effective approach i.e, it costs 75 cents per person and \$750 per LHW for 1000 persons. It offers coverage of large portion of population, especially targeting the neglected rural community (60%-70%). LHWs are easily accepted by the community as the family members prefer their women to get health care at home from female health workers (Wazir et al., 2013).

5.2 Challenges of LHW mental health care program:

Integration of Mental health care with the LHW program needs proper course, knowledge, skills and training. Moreover, shortage of health care workforce can lead to overburdening the LHW cadre leading to decreased motivation and poor performance. There is a need of good supervision and proper allocation of Human resource. Also,

when LHWs are not paid timely and adequately or there is no bonus or incentives for extra work, their performance will be decreased (Zullinger, June 19, 2018). Another huge challenge is the unacceptability of this integration program by the LHW team due to lack of trust on the policy makers regarding some bonus or incentive and lack of proper training. LHWs perceive it as an extra burden thus increasing their job stress. Policy makers need to design proper strategy and policy to function this integration program effectively (Syed S. Hussain, 2018).

9. Conclusion:

Mental health care is not much considered in the health care programmes of Pakistan but there is rapidly increasing prevalence of mental disorders. In Pakistan, anxiety and depression show the highest prevalence especially among women. This is due to many factors like low budget, shortage of healthcare workforce and gender inequality, lack of awareness, low literacy, less education, societal misperceptions, misbeliefs for some spiritual event health urban-rural care inequalities. Community Health workers like LHWs can assist in decreasing health care inequalities. To decrease this gap between the mental health care services in Pakistan, LHWs can work vertically with reproductive as well as mental health programmes at a time within limited budget cost-effectively (Fauziah Rabbani, 2023). LHWs can connect with the community effectively, especially targeting women and rural areas, both with high prevalence of mental disorders. However, this integration program needs proper knowledge, skills and training program designed and implemented. For cost-effective and positive results, LHWs must be trained, allocated and perform under proper supervision and proper guide. All the policymakers and the stakeholders should design a uniform policy to provide job security and commitment to the LHWs, thus to decrease the mental disease burden and to get the most productive and costeffective mental health care (Wazir et al., 2013).

10. References

- Ali, T. M. & Gul, S., 2018. Community Mental Health Services in Pakistan: Review Study From Muslim World 2000-2015. Psychology, Community & Health; Lisbon, 7 (1), p. 57.
- Balaji, P., 2022. MENTAL HEALTH IN PAKISTAN.
 [Online]
 Available at:
 https://borgenproject.org/mental-health-in-pakistan/
- Bank, W., n.d. *The World Bank Data*. [Online]
 Available at:
 https://data.worldbank.org/indicator/SH.ST
 A.SUIC.P5?locations=PK
- Dayani, K. &. Z. M. &. Q. O. &. B. M. &. S. T., 2023. Evaluating Pakistan's Mental Healthcare System Using World Health Organization's Assessment Instrument for Mental Health System (WHO-AIMS). Volume 1.
- Fauziah Rabbani, ,. S. A. J. N. S. K. S. S. Z. M., 2023. Addition of Mental Health to the Lady Health Worker Curriculum in Pakistan: Now or Never. *Acta Psychopathologica*, 9 (1), p. 7197.
- Finance Division, G. o. P., 2023. *Pakistan Economic Survey 2022-23*, Islamabad: Government of Pakistan Finance division.
- GIHD, n.d. Certificate. Training Programs
 GIHD. [Online]
 Available at:
 https://gihd.stmu.edu.pk/research-ledtraining/
- Hassan Khan, S. K. A. I. A. K. M. K. M. A. K. R. K. S. K. S. J. S. J. A. U. a. H. N., 2007. Prevalence and demographics of anxiety disorders: a snapshot from a community health centre in Pakistan. *Annals of General Psychiatry*, 6 (30).
- Humayun, A. et al., April 2017. Implementing mhGAP training to strengthen existing services for an internally displaced population in Pakistan. *Global Mental Health*, 3 (4), p. e6.
- Ilyas, F., January 27, 2024. Sindh govt launches first-ever policy on mental health, Karachi: Dawn Newspaper.

- Irfan, M., 2013. Integration of mental health in primary care in Pakistan. *J Postgrad Med Inst*, 27 (4), pp. 349-51.
- Javed, A., 2023. PUBLIC MENTAL HEALTH: AN AGENDA FOR ACTION. *Journal of Pakistan Psychiatric Society*, 20 (1), pp. 4-6.
- Javed, A., Khan, M. N. S. & Nasar, A., 2020. Mental Healthcare in Pakistan. *Taiwanese Journal of Psychiatry*, 34 (1), pp. 6-14.
- Khalily, M. T., 2011. Mental health problems in Pakistani society as a consequence of violence and trauma: a case for better integration of care. *International Journal of Integrated Care.*, Volume 11, p. e128.
- Malik, M. A. & Khan, M. M., 2016. Economic Burden of Mental Illnesses in Pakistan. *The Journal of Mental Health Policy and Economics*, Volume 19, pp. 155-166.
- Ministry of National Health Services, Regulations & Coordination, Government of Pakistan, June 2022. *Lady Health Worker's Strategic Plan*, s.l.: s.n.
- Mirza, Z. & Rahman, A., December 21, 2019. Mental health care in Pakistan boosted by the highest office. *The Lancet*, 394 (10216), pp. p2239-2240.
- Mubbashar, M. H., 2003. Development of mental health services in Pakistan. *Int Psychiatry*, 1 (1), pp. 11-13.
- NHSRC, Pakistan, n.d. *National IRMNCAH&N Strategy (2016-2020)*, s.l.: s.n.
- Niaz, U., Feb 2004. Women's mental health in Pakistan. *World Psychiatry*, 3 (1), pp. 60-62.
- Pakistan, G. o., 2016. *National Health Vision 2016-*2025. [Online] Available at:
 - https://extranet.who.int/countryplanningcycles/sites/default/files/planning_cycle_repository/pakistan/national_health_vision_2016-25_30-08-2016.pdf
- S Mudasser Shah, T. S. W. X. W. J. a. Y. Y., 2022. The mental health of China and Pakistan, mental health laws and COVID-19 mental health policies: a comparative review. *General Psychiatry*, 35 (5), p. e100885.

- Salima Muhammad Farooq, S. A. a. S. S. I. H. S. A. I. Y. N. P. H. S., 2020. Mental Health Challenges and Psycho-social Interventions amid COVID-19 Pandemic: A Call to Action for Pakistan. *Journal of the College of Physicians and Surgeons Pakistan*, 30 (JCPSPCR), pp. CR59-CR62.
- Siddiqui, F. & Khan, Q. u. a., 2021. Barriers and Challenges to Mental Health Care in Pakistan. *Pakistan Journal of Neurological Sciences (PJNS)*, 16 (3).
- Sikander, S., October, 2020. A letter from Pakistan. *The Lancet Psychiatry*, 7 (10), p. 845.
- Suhail, K., 2005. A study investigating mental health literacy in Pakistan. *Journal of Mental Health*, 14 (2), pp. 167-181.
- Syed S. Hussain, M. K. R. G. a. N. A., 2018. Integration of mental health into primary healthcare: perceptions of stakeholders in Pakistan. *Eastern Mediterranean Health Journal*, 24 (2).
- Taskeen.org, n.d. Taskeen-Sehatmand Pakistan. [Online]

Available at: https://taskeen.org/seek-help/

United for Global Mental Health, 2023.

*Advocating for better mental health policies in Pakistan.. [Online]

Available at: https://unitedgmh.org/app/uploads/2023/05/
United-Case-Study-Taskeen.pdf

- Wazir, M. S., Shaikh, B. T. & Ahmed, A., 2013. National program for family planning and primary health care Pakistan: a SWOT analysis. *Reproductive Health*, 10 (60).
- WHO, MNHSR&C, Government of Pakistan, Dec 2016. WHO MENTAL HEALTH GLOBAL ACTION PROGRAMME (mhGAP) SITUATION ANALYSIS OF PRIMARY HEALTHCARE SYSTEM PAKISTAN, s.l.: s.n.
- WHO, n.d. *World Health Organization*. [Online]
 Available at:
 https://www.who.int/data/gho/data/majorthemes/health-and-well-being
- Zullinger, R., June 19, 2018. *PAKISTAN'S LADY HEALTH WORKER PROGRAM*, s.l.: CHW Central.

Ethics statement:

This review does not involve any human study or clinical trial study. However, all the studies are properly cited and no content piracy is done.

Reseach of properly cited and reduced Science Review