Can digital innovation be helpful to mental health care in Ghana?

By: Ernest Okyere-Twum

Abstract

Ghana has a population of about 24 million per data in 2011. It is estimated that about 842,600 people are suffering from severe mental disorder and 2808 are suffering from moderate to mild mental disorder. The treatment gap is about 98% and the doctor to patient ratio is 1:1.17 million. Perturbing as this may be, little attention is given to mental health in Ghana. The country has three psychiatric hospitals (all situated in the southern part of the country), nineteen psychologists, and eighteen psychiatrists, which reveals the deplorable state of mental health in Ghana. This paper seeks to provide an overview of mental health in Ghana and the need to explore other interventions such as digital innovation in helping mental health care in Ghana.

Keywords: mental health, Ghana, social media, digital innovation, legislation, research, trust, health

Introduction

In 2011, Ghana's population was about 24,658,823 and 38% was below age 15 and about 50% between the ages of 15 and 49 per data released by the Ghana Statistical Service. This implies that Ghana has a youthful population. Ghana is regarded as a lower middle income per World Bank data.[1] According to the WHO, about 14% of the global disease burden in 2000 was in mental health disorders. MHGAP[2] has noted that most mental, neurological and substance use disorders mostly occur in countries with lower middle income and low income. The sentiment is that these countries have the highest need to deal with mental health amidst the insufficient resources available. The tendency has been for these countries to focus their resources on reproductive health, infectious diseases with little priority on mental health cases.

Does this mean, alternative avenues should be considered by these countries in dealing with health related issues but especially mental health? I believe the answer is YES and the proposal of this paper is to advocate and recommend digital interventions in mental health.

Brief overview of Ghana's mental health

Ghana's legal and governance system were modelled after the British system prior to independence. As a result of Ghana being a former colony of UK. Health care delivery in Ghana is provided by mainly the public and private sectors but the overall control of all health issues including evaluation, monitoring and formulation are under the Ministry of Health. The health sector in Ghana is predominately funded by the government with some funds from donations and internally generated funds.

a. Legislation

[1] https://data.worldbank.org/country/ghana
[2] Mental Health Gap Action Programme

The first post-independence mental health legislation was the Lunatic Asylum Act of Gold Coast in 1888. The old High Court at Victoriaborg was converted to serve the purpose of the lunatic asylum. This asylum was not meant for treatment rather for segregation. Staff at this asylum only engaged in supervisory responsibilities by feeding and monitoring the health of patients. As at the beginning of 1907 the asylum was housing about 63 patients with 12 staffs (Forster, 1962). By the end of 1907 a new hospital was built to tackle overcrowding. Patients were transferred from Victoriaborg bringing the number of patients at the hospital to 110 with staff of 16 nurses and a part time doctor. Violent and restless patients were often chained with handcuffs and leg irons or seclusion in single cells. Other patients engaged in vegetable farming as a form of occupational therapy. By 1960, the number of patients were about 1500 being housed at the hospital built to cater for 600 people. Amidst the infrastructural difficulties, the hospitals by 1951 had begun a therapeutic treatment for patients (Forster, 1962). The Lunatic Asylum Act was replaced by the Mental Health Decree (NRCD 30) in 1972. Unfortunately this very Act was not implemented (Doku et al, 2012).

In 2012, Ghana passed a Mental Health Act 846 of 2012 addressing mental health as a public issue and the protection of the human rights of people with mental disorder in Ghana. The Act was enacted after eight years of deliberation and consultation. It came as a replacement for the 1972 Mental Health Decree. Previously, mental healthcare provision was managed by the Mental Health Unit of the Institutional Care Division under the Ghana Heath Service (GHS). The enactment of the Act instituted a new body, Mental Health Authority responsible for the implementation of the Act. The objective of the Authority is to **a.** propose mental health policies, **b.** implement mental health policies, **c.** promote mental health and provide humane care including treatment and rehabilitation in a least restrictive environment; and **d.** promote a culturally appropriate, affordable, accessible and equitably distributed, integrated and specialised mental health care that will involve both the public and the private sectors. The Mental Health Act 846 of 2012 outlined various aspects such as rights of persons with mental disorder, protection of vulnerable groups, procedures for voluntary and involuntary admission and treatment, establishment of mental health review tribunals, establishment of regional visiting committees, establishment of the Mental Health Fund, introduction of sanctions for the offences of neglect of or discrimination against persons with mental disorder (Mental Health Act 846 of 2012).

After the enactment of the Act, there were concerns about challenges of implementing the Act. Challenges such as human resource, social service, legal and judicial, the role of the Commission for Human Right and Administrative Justice (CHRAJ) information systems and financial implications were cited as possible for concerns which the Act seem not to address for a coherent implementation(Doku et al, 2012). Subsequently in 2014 a survey was conducted to ascertain the barriers of the implementation of the Act. About 12 stakeholders comprising of GHS mental health workers, psychiatrists, board members of the Mental Health Authority as well as key personalities from some NGO's were interviewed (Walker, 2015). Results from the interviews confirmed the concerns were raised by Doku et al. However, the delay in the parliamentary process in passing the Legislative Instrument was high priority to the stakeholder's interviewed. The Legislative Instrument is to help resource the Mental Health Authority in implementing the Act and improving mental health in Ghana. The research by Walker (2015) through the interview of stakeholders concluded that efforts should be directed on securing funding for the Mental Health Authority, public education, developing of infrastructure and human resources, approval of the Legislative Instrument, legal infrastructure and rectification of human rights breaches should be given the necessary attention for effective implementation of the Act.

b. Mental Health Financing

About 1.4% of government spending on health goes into mental health. Nonetheless almost all funds available to mental health was spent on the three psychiatric hospitals that Accra Psychiatric Hospital, Pantang Psychiatric Hospital and Ankaful Psychiatric Hospital, all situated in the southern part of Ghana. These funds are often used by the hospitals for their overhead cost likewise basic supplies and service maintenance. Apart from the government allocation of funds, Mental Health Authority also get some funding from international development partners and some NGO's. Oftentimes, these financial resources are channelled into purchasing medicines when the hospitals run out of medicines. Patients and families also engage private services or traditional/faith based practitioners for mental health care which makes it difficult to have an overall expenditure on mental health care (Roberts et al, 2014). In Ghana, mental health care per government policy is supposed to be free which means care delivery will always be difficult is adequate funds are not provide to make this a reality. As such, some patients have to bear the full cost of mental health care services and the underprivileged and poor become helpless.

c. Mental Health Services

It is estimated that, about 123 mental health outpatients units are operational within the country. None of these facilities have an exclusive unit for children or adolescents though about 14% of patients treated at the outpatient units were either 17years or younger. Most of mental health diagnoses in outpatient services were mainly of schizophrenia (25%), mood disorders (10%), neurotic and stress related disorders (8%), substance misuse (7%), disorders of adult personality and behaviour (1%) and "other" diagnoses such as epilepsy, organic disorders, and mental retardation (39%). It is noted that about 10% did not have any diagnosis (Roberts, et al, 2014). As at 2011 Ghana had only one day treatment centre at the Western Region-Damien House Rehabilitation Centre. The centre is a privately owned facility by the Catholic Church. Patients were treated through occupational therapy, psycho-education, pastoral care, psychomotor skills. The centre has one psychiatric nurse, one hospital assistant and one therapist. The country has three main institutional hospitals dedicated for mental health care but all are situated in the southern part of the country. In 2011, there were about 7900 admissions at these hospitals and about 32% were female. Diagnosis included schizophrenia, schizotypal and delusional disorders (32%), mental and behavioural disorders due to psychoactive substance use (26%), mood disorders (19%), epilepsy or organic mental disorders (12%), neurotic, stress related disorder (1%) and no diagnosis (10%). Apart from mental hospitals, about seven general hospitals and clinic based psychiatric supports the inpatient units in the country. Over the period of 2011, 47% of patients treated were women and 3% of those treated were 17 years and below. Diagnosis were basically schizophrenia, schizotypal and delusional disorders (21%), mental and behavioural disorders due to psychoactive substance use (9%), mood disorders (6%), epilepsy, organic mental disorders, mental retardation (6%) and no diagnosis (58%) (Roberts et al, 2013). It was estimated that out of 2.4 million people with mental health problems only 67,780 (2.8%) received treatment in 2011. This could be attributed to the under resourced facilities of 123 mental health outpatient facilities, 3 psychiatric hospitals, 7 community based psychiatric inpatient units, 4 community residential facilities and 1 day treatment centre.

d. Human Resources

The staffing within the mental health system in Ghana is nothing to write home about. The medical and nursing workforce in Ghana has a total of 32,007 of which 29,974 are nurses and midwifery and 2,033 physicians as at 2008 and 2009 respectively per WHO figures. The table below shows that about 1887 workers are working in the mental health service out of which 1177 were specifically trained in mental health as at 2011. Mental nurses were about 1068 representing the largest group followed by community officers of 72. Nonetheless trained mental health psychologist and psychiatrists were the least with 19 and 18 respectively. These figures are nothing to be excited about. These trained staff were supported by about 710 personnel who have no specific training in mental health. The largest support group were medical assistants, auxiliaries, paraprofessional counsellors etc making up of 474 personnel's.

Specifically Trained Mental Health Staff	
Registered Mental health nurses	1068
Community Mental health officers	72
Psychologists	19
Psychiatrists	18
Sub-total	**1177**
No Specific Training in Mental Health	
State Registered Nurses	180
Medical doctors	31
Social workers	21
Occupational Therapist (foreigners in Volunteer Services Oversees)	4
Medical Assistants, non-doctors, health assistants, auxiliaries etc	474
Sub-total	**710**
Grand Total	**1887**

Roberts et al, 2013 report published on behalf of the Ministry of Health by the Kintampo project makes the situation more alarming. The report outlines the distribution of staff across the ten regions of Ghana per 100,000 population. Below is an extract of mental health staff per 100,000 population. The data has been rearranged to reflect order of highest staff per region.

Region	Total Staff
Greater Accra	8.02
Central	4.20
Northern	3.21
Upper West	2.36
Eastern	1.81
Upper East	1.65
Brong Ahafo	1.56
Western	1.46
Volta	1.22

Ashanti	1.22

e. Medications

A key element in mental health care is the provision of medication. Ghana's policy is to provide free mental health care to patients including medications. Most of mental health cases require various forms of treatment or medications by means of pharmacological or non-pharmacological. Due to the limited resources and staffing in the mental sector, Ghana undoubtedly engages pharmacological means of managing mental health illness (Oppong et al, 2016). These medicines include anti-psychotic, mood stabilizer, anxiolytic, antiepileptic, antidepressant etc. Due to the lack of funding and the demand on the mental health services, some of these drugs often go out of stock and patients have to purchase them without refund. In 2011, a patient could spend as much as 30% of minimum wage on the cheapest antipsychotic medications, about 27% on antidepressants and 16% for the supply of epileptic phenobarbitone drugs (Roberts et al, 2013).

Social media in health perspective

There are considerable evidence that social media has become popular among young people and this have been consistent with most studies and even labelled as an integral aspect of a young person's life for the purposes of experimentation, creative self-expression, and identity formation (Cortesi, 2013). For eg. Pew Internet Project in 2016 indicates that 86% of U.S. internet users are young people as well as a study among Indian internet users (Neelamalar & Chitra, 2009). Even though statistics on users of social media such as WhatsApp, twitter, Instagram, snapchat etc in Ghana are unavailable except Facebook, available data reveal approximately 4,000,000 users of Facebook (Internet world Stats, 2017), which is confirmed by some studies (Mingle & Adams, 2015; Ocansey et al, 2016). These studies have shown that the Ghanaian youth mostly use social media especially Facebook for maintaining contacts, content sharing, business networking, entertainment and educational related matters. This is not to disregard the negative effects it has on users such as risk of online harassment, sexual development, sexting, Facebook depression (Hope, 2009; Irvine, 2009; O'Keeffe et al, 2011), exposure to third-party advertising groups and sleep deprivation which can lead to low academic output (Lenhart et al, 2010) and cyberbullying. Other potential effects have been anxiety (YHM & RSPH, 2017).

Even so, other available research on social media use and depression have yielded mixed results. Some studies show that frequent use of social media may be linked to declines in subjective well-being, life satisfaction, and real-life community (Kross et al, 2013; Chou, 2012). Other studies, though propose that users may experience decreased depression (Bessière et al, 2010) possibly due to an increase in social capital, perceived social support, and life satisfaction (Ellison et al, 2007; Valenzuela et al, 2009).

Available research shows that the health sector in general continues to benefit from social media whiles research continues to explore how social media can improve its field. Social media has become a central role in providing health information and consumers are making more health decisions based on information on social networks. It is estimated that about 8890 hospitals use social media to engage patients, about 17000 health apps mostly available in the US and users of health and medical apps are mostly young people (Vikram, 2010). This

suggests that the social networks are bringing patients and physicians together in peer-to-peer relationships allowing for invaluable around the clock support.

The developed countries continue to explore other avenues in dealing with mental health especially using digital innovation. The question is, can Ghana or lower middle income countries consider exploring digital innovations in mental health? I believe this is a possibility.

The reason being, the health sector continues to reveal positive influence social media is having in that field. Results demonstrates that people with serious mental health engage in online peer interaction for social connectedness, feeling of group belonging and sharing personal stories and strategies to cope with their day to day challenges (Naslund et al, 2016). This is a useful finding for the Ghanaian health sector in exploring how health practitioners can engage the social media in addressing mental health issues among the youth.

Also health communication among the public, health professionals and patients have been feasible through social media networks resulting in answers to medical questions, facilitating dialogue, reducing stigma, health intervention, data collections on patience experience and opinions, and even for consultation. In dealing with stigma, online communities offer opportunities for people with mental illness to challenge stigma through hope and empowerment with other individuals. (Lawlor & Kirakowski, 2014). Studies reveal that knowing that others face similar concerns, frustration, and illness creates a sense of acceptance to a group (Harvey et al. 2007) and gain a sense of relief because others share similar experiences and challenges (Naslund et al. 2014). The idea of anonymity associated with online networks allows for true self-expression without feeling a sense of stigmatisation, disapproval or fear of making mistakes (Bargh et al. 2002). As a result individuals with mental illness can benefit from interacting with others through the social media. Another means to tackle stigma is when people come out and disclose their illness (Corrigan et al. 2010; Corrigan et al. 2013). Online peer to peer communities' gives people the avenue to connect with others in sharing their experience, addressing myths and stigma associated with mental illness as well as choosing to share their recovery stories.

In fact researchers from Microsoft, Harvard and Vermont Universities are researching on how social media can be used to diagnose depression, which in turn could help people receive treatment early.

Evidently social media use has been and continue to be of useful help in the health sector amidst the negative effects it poses to users. Nevertheless, this offers an opportunity to explore ways in which digital innovation especially social media could be useful in mental health care in Ghana.

What next and recommendations

Forster, 1962, writes that there were no psychiatrists in Ghana and for a period of nine years there was only one psychiatrist in the country. Africa had only four psychiatrists (one in Nigeria, Ghana and two in Sudan). As far back as the 19th century, the mental health situation in Ghana faced various challenges from personnel to facilities. Evidently, the mental health sector needs help in various aspect, be it personnel, infrastructure, funding, medication and education against stigma and adhering to human rights laws. Though there has been some

progress over the centuries, this progress is inadequate compared to the state of mental health in Ghana.

The Ghana Mental Health Authority are advocating for the Ghanaian Parliament to approve the Legislative Instrument to bolster the effort of the body on the implementation of its short and medium term strategic plan. The body strategic plan among others includes creating regional tribunals, decentralisation and integration of mental health care into the general health care system, establishing drug rehabilitation centres, drug procurement system and halfway homes. Other projects include curbing the inhumane treatment of patients and educational programmes for all stakeholders. Amidst these challenges facing the body, they continue to strive to improve mental health in Ghana.

Nonetheless, with the current technological development and the impact of social networking sites and research, there is the need to explore other mediums in tackling mental health care in Ghana. Currently, the mental health treatment is mostly pharmacological and with lack of funding most patients are compelled to purchase their own medicine without refunds. Notwithstanding, the antipsychotic, anticonvulsant and lithium medications come with side effects, which also result in introducing other medicines to deal with these side effects. The antipsychotics medicines mostly result in extrapyramidal and metabolic side effects such as dystonia, dyskinesia, drooling, oculogyric crisis, twisting of neck as well as diabetes and weight gain. Medicines like anticonvulsant and lithium had side effects as Steven Johnson syndrome, pigmentation, spinal bifida and blood dyscrasia (Oppong et al, 2016). Thus, the need for alternative approach to mental health is crucial. One area to consider is digital innovation or social media networking as a contributory factor is helping with mental health care. Undoubtedly, digital innovation is becoming a vital tool in dealing with mental health care be it reducing stigma, social connectedness, group belongings, health intervention, consultation etc. However, the Ghanaian context will demand interventions that are suitable for his/her needs, which calls for three main initiatives that are empirical research, building trust and partnership.

The call for empirical research is not one for the governmental sector or the mental health body but also to individuals and the public. Research should be encouraged within the Ghanaian context in exploring alternative ways of dealing with mental health but more specifically digital interventions and how it can be employed in dealing with mental health issues. Read and Doku (2012) conducted a research review on mental health research in Ghana and found about ninety-nine articles between the period of 1955 and 2009. These were from social science and medical journals in Ghana and UK. This was confirmed by a PubMed research conducted between 2006 and 2011, which revealed about one percent of health publications in Ghana was on mental health (Roberts et al, 2014). Below is an extract of data from Read and Doku (2012).

Area	Number of research	Year of Publication
Psychosis/Schizophrenia	4	1966, 1968, 1984, 2000
Depression	5	1955, 1983, 1996, 2000, 2001
Suicide and self-harm	5	1989, 1975, 2000, 2003, 2008
Women's mental health	5	1992, 1999, 2001, 2004, 2009
Psychological interventions	1	2005
Epilepsy	3	1972, 1980, 1990

The statistics don't seem encouraging at all. In a period of 54 years (1955-2009) only ninety-nine articles were published which means 1.8 publication per year. Most research conducted were small in scale and mostly speculative in nature. The establishment of mental health NGO's have contributed to some projects and more research are being conducted in mental health. Organisations like MindFreedom Ghana, BasicNeeds Ghana, the Kintampo project, the Epilepsy Society of Ghana, Mental Health Educators in Diaspora (MHED), Ghana mhGAP Epilepsy Initiative etc all continue to engage in research and projects to enhance mental health care in Ghana. However, there is the need for more comprehensive research by psychologist, psychiatric nurses, social workers and graduate students with the central focus on alternative interventions such as social media or other digital means. More research is needed in the area of therapeutic interventions such as drama therapy, music therapy or interactive theatre as alternatives in dealing with mental health care in Ghana. More importantly, the need to explore digital innovation is key as some individuals have begun exploring the use of digital means such as Dokita App, MindIT[3] etc in contributing to healthcare delivery in Ghana. Quite unfortunate is that most hospitals and medical facilities in Ghana don't even have mobile application neither are they active with the use of social networking sites.

More researchers should be encouraged in exploring digital innovation as a means of addressing mental health care in Ghana. Indeed other countries have begun researching and have seen positive results and the onus is all Ghanaian to join in the effort of contributing patriotically to the mental health situation in Ghana.

Research is just one aspect of the recommendations in helping with mental health. Stigma has been one of the challenging issues for the Mental Health Authority. Digital innovation have proved to be a viable medium in dealing with stigma. Online peer to peer communities have given people the opportunity to connect with others by sharing their experiences and sharing their recovery stories. This brings hope and empower others as well. However, building trust among various stakeholders also comes as a great contributory factor in helping mental health care. Stakeholders like traditional practitioners, families, faith based institutions, and clinicians etc should be engaged in discussing stigma, helping with educating and creating an avenue for dialogue. For instance, as far back as the 19th century when the first mental health Act was passed in the then Gold Coast now Ghana, faith based organisations and traditional practitioners were actively providing mental health care to patients. Mental health at that time was seen as spiritual punishment, which needed spiritual interventions. Thus patients were kept in secluded places to be treated through prayers, fasting, exorcism and rituals. Unfortunately, the lack of education at that time compelled these religious fraternity to handle patients in inhumane environment like chaining, starving and abusing their human rights. Regrettably, such practices continue to exist fostering stigma. In his newspaper publication,

[3] Dokita App is a web and mobile networking application that seeks to link clinicians with patients. The focus is on general health and not mental health. Patients are able to ask questions about their health, receive treatment via prescription and consultation. MindIT is an organisation that seeks to use digital innovative tool in providing mental health care in Ghana. This project was started by medical and engineering students. Patients or users have to dial a toll free short code and thereafter answer four basic questions in a questionnaire. The response and telephone number is forwarded to a call centre via instant text message. The user or patient is then connected to a community psychiatrist unit closest to the user or the patient. Currently, this organisation is facing financial difficulty is sustaining the platform.

Yaro (2017) laments about the inhumane treatment of people with mental health in supposedly 'prayer camps' where they might receive healing of their illnesses. He calls for the enforcement of law against these prayer camps that are infringing on the United Nations Convention of the Rights of Persons with Disability (UN-CRPD) and the Mental Health Act, 2012 (846) which criminalise forced detentions. This paper calls for more dialogue with these institutions and other stakeholders. Nonetheless, these misconceptions about people with mental health stems from the inadequate dialogue and lack of trust that families and affected people have in the government and other state agencies. Thus, there is the need for the Mental Health Authority together with the government to engage in a process of *trustathlon*[4]. Worth mentioning and deserving commendation is the effort the mental health body and NGO's are making in creating an avenue for dialogue with all stakeholders in addressing challenges facing mental health in Ghana. Even so this paper is advocating for more dialogue on the subject of trust among stakeholders especially families, traditional and faith based healers, government, academicians, care givers, clinicians as well as NGO's. This is to facilitate discussions of dealing with stigma and other non-pharmacological interventions precisely digital innovation as a form of mental health care in Ghana.

Lastly, the continuous partnership with various stakeholders are important but this paper advocates specifically for partnership with research institutes, telecommunication companies, technological experts, entrepreneurs, interested individuals and the general public in working together for a better mental health care in Ghana through digital innovative means. The Mental Health Authority in Ghana published an article in 2017 asking for help from the telecommunication sector to operate a 24 hour toll free line which will serve as an urgent and interventional support for people contemplating suicide. It also seeks to provide psycho-social support to everyone in Ghana. This has been long overdue and it is quite unfortunate that a country like Ghana does not have a system that provides an avenue for a quick response for mental health care. The mental health body is seriously under resourced to respond to the mental health needs in the country. As such institutions, individuals, researchers, financiers, technocrats, religious bodies, citizens will all have to join forces in tackling mental health in Ghana.

References

1. Bargh J.A, McKenna K.Y, Fitzsimons G.M. (2002), Can You See the Real Me? Activation and Expression of the "True Self" On the Internet, *Journal of Social Issues*. 58(1), pp.33-48.

2. Bessière K, Pressman S, Kiesler S, Kraut R., (2010), Effects of Internet Use on Health and Depression: A Longitudinal Study, *Journal of Medical Internet Research*, 12(1), pp. 1-36.

[4] It is a loose word emanating from the idea that the athletic competition of decathlon or heptathlon involve series of field and track events be it 100 meter dash, running, long jump, 400 meter run, hundles or 1500 meter run. In other words, the idea of building trust should follow a procedural formality as well as several forms and formats in reaching the ultimate goal. I am using this word to refer to a project of building trust with key stakeholders which entails both short and long term strategic plan.

3. Chou H.T, Edge N, (2012), They Are Happier and Having Better Lives Than I Am": The Impact of Using Facebook on Perceptions Of Others' Lives, *Cyberpsychology Behavior and Social Networking*, 15(2), pp. 117-121.

4. Cortesi, Sandra, Youth Online: Diversifying Social Media Platforms and Practices, *H20*, last updated December 10, 2013, https://h2o.law.harvard.edu/text_blocks/2113.

5. Ellison N.B., Steinfield C, Lampe C, (2007), "The Benefits of Facebook "Friends:" Social Capital and College Students' Use of Online Social Network Sites", *Journal of computer-mediated communication*, 12(4), pp. 1143-1168.

6. Corrigan PW, Morris S, Larson J, Rafacz J, Wassel A, Michaels P, Wilkniss S, Batia K, Rüsch N. (2010), Self-Stigma and Coming Out About One's Mental Illness, *Journal of Community Psychology*, 38(3), pp. 259-275.

7. Corrigan PW, Kosyluk KA, Rüsch N., (2013), Reducing self-stigma by coming out proud, *American Journal of Public Health*, 103(5), pp. 794–800.

8. Doku, V., Wusu-Takyi, A. & Awakame, J. (2012), Implementing the Mental Health Act in Ghana: any challenges ahead?, *Ghana Medical Journal*, 46 (4), pp. 241-250.

9. Forster, E.B. (1962), A historical survey of psychiatric practice in Ghana, *Ghana Medical Journal*, 1, pp. 25-29

10. Ghana Statistical Service, 2010 Population and Housing Census, (Accra: Ghana Statistical Service, 2012).

11. Harvey KJ, Brown B, Crawford P, Macfarlane A, McPherson A., (2007), Am I normal?' Teenagers, Sexual Health and the Internet, *Social Science & Medicine*, 65(4), pp.771–781.

12. Hope Jenny, "Why chatting too long on Facebook can get a girl down", Accessed 8 January 2017. Updated 30 January 2009. http://www.dailymail.co.uk/health/article-1132788/Why-chatting-long-Facebook-girl-down.html.

13. Internet World Stats, "Internet Users Statistics in Africa," Accessed 8 January, 2017. http://www.internetworldstats.com/stats1.htm.

14. Irvine Chris, "Excessive chatting on Facebook can lead to depression in teenage girls", Accessed 8 January 2017. Updated 31 Jan 2009. http://www.telegraph.co.uk/technology/facebook/4405741/Excessive-chatting-on-Facebook-can-lead-to-depression-in-teenage-girls.html

15. Kross Ethan, Philippe Verduyn, Emre Demiralp, et al, (2013), Facebook Use Predicts Declines in Subjective Well-Being in Young Adults, *PLoS ONE*, 8(8), pp. 1-6.

16. Lawlor A, Kirakowski J., (2014), Online Support Groups for Mental Health: A Space for Challenging Self-Stigma or a Means of Social Avoidance?" *Computers in Human Behavior*, 32(Issue C), pp. 152–161.

17. Lenhart Amanda, Purcell Kristen, Smith Aaron, and Zickuhr Kathryn, "Social Media and Mobile Internet Use among Teens and Young Adults," *Pew Research Center*,

Accessed 8 January 2017. Last updated February 3, 2010. http://www.pewinternet.org/2010/02/03/social-media-and-young-adults/

18. Mingle Jeffrey & Adams Musah, (2015), Social Media Network Participation and Academic Performance in Senior High Schools in Ghana, *Library Philosophy and Practice*, 21(7), pp. 1-51.

19. Naslund JA, Grande SW, Aschbrenner KA, Elwyn G., (2014), Naturally Occurring Peer Support through Social Media: The Experiences of Individuals with Severe Mental Illness Using YouTube. *PloS ONE*, 9(10), pp. 1-9.

20. Naslund J. A., Aschbrenner K. A., Marsch L. A. and Bartels S. J., (2016), The Future of Mental Health Care: Peer-to-Peer Support and Social Media, *Epidemiol Psychiatr Sci*., 25(2).

21. Neelamalar M., and Chitra, P., (2009), New Media and Society: A Study on the Impact of Social Networking Sites on Indian Youth, *Estudos em Comunicação*, No. 6 pp. 125–145.

22. Mental Health Act, Parliament of the Republic of Ghana (2012).

23. Ocansey Selasie K., Ametepe W., Oduro Charles F., (2016), The Impact of Social Media on the Youth: The Ghanaian Perspective, *IJETS*, 16(1), pp. 87-97.

24. O'Keeffe Gwenn Schurgin, Clarke-Pearson Kathleen and Council on Communications and Media, (2011), "Clinical Report-The Impact of Social Media on Children, Adolescents, and Families", *Pediatrics*, AAP, Illinios, pp. 800-804.

25. Oppong, Samuel, Kretchy Irene A., Imbeah Emelia P., and Barima A. Afrane (2016), Managing Mental Illness in Ghana: the state of commonly prescribed psychotropic medicines, *International Journal of Mental Health Systems*, 10 (28), pp. 1-10

26. Pew Internet Research, "Social Networking Facts Sheet", *Pew Research Center*, 2017. http://www.pewinternet.org/fact-sheet/social-media/

27. Read U.M and Doku V.C.K. (2012), Mental Health Research in Ghana: A Literature Review, *Ghana Medical Journal*, 46 (2), pp. 29-38.

28. Roberts M, Asare J, Mogan C, Adjase E, Osei A.The mental health system in Ghana - WHO AIMS report. Accra: Kintampo Project / Ghana Ministry of Health; 2013.

29. Roberts Mark, Mogan Caroline and Asare Joseph B, (2014), An overview of Ghana's Mental Health System: Results from An Assessment Using the World Health Organization's Assessment Instrument for Mental Health Systems (WHO-AIMS), *International Journal of Mental Health Systems,* 18(16), pp. 2-13.

30. RSPH and Young Health Movement, Report on "State of Mind: Social media and young people's mental health and wellbeing". (2017).

31. Valenzuela Sebastián, Namsu Park, Kerk F. Kee, (2009), Is There Social Capital in a Social Network Site?: Facebook Use and College Students' Life Satisfaction, Trust, and Participation, *Journal of Computer-Mediated Communication*, 14(4), pp. 1-40.

32. Vikram, (2010), Impact of Social Media in Healthcare: Transforming Healthcare through Social Media, *WIPRO*, pp.1-9.

33. Walker, G. (2015), Ghana Mental Health Act 846 2012: A Qualitative Study of the Challenges and Priorities for Implementation, *Ghana Medical Journal*, 49 (4), pp. 266–274.
34. WHO. The World Health Report 2001 -Mental Health: New Understanding, New Hope. Geneva: WHO Archive; 2001.

35. Yaro B. Perter (2017), Of Prayer Camp and Mental Health in Ghana Part 1 and 2, *The Ghanaian Times Newspaper*, October 9 and 16, p.9.