SHORT REPORT

Development and validation of a psychometric scale to assess attitude towards safe abortions in Pakistan

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Abstract

Despite severe health and economic consequences that women face because of the negative attitude of healthcare providers towards safe abortion and post-abortion care (SA/PAC), no psychometric tool has yet been validated for assessing the attitude towards SA/PAC. Only a handful of studies have attempted to assess healthcare providers' attitude towards safe abortions in Pakistan. Therefore, this study aimed to develop and validate a psychometric scale to assess attitude towards safe abortions in Pakistan. The study collected data from 106 workers of an NGO that provides SA/PAC through an online and anonymous survey using the organisation's network. The study used factor analytic techniques and structural equation modelling to validate the factor structure and a final hierarchical model. A final scale of seven items relating to attitude towards elective abortions and moral attitude towards safe abortions was validated. The scales were highly reliable with both factors having reliability indicators greater than 0.7. The scale can be easily implemented to assess providers' attitude towards safe abortions. This will allow programmers to screen healthcare providers with a negative attitude, and evaluate the efficacy of their Value Clarification and Attitude Transformation (VCAT) programmes that are aimed at transforming providers' attitude towards safe abortions.

Keywords: Structural equation modelling, factor analysis, post-abortion care, scale development, elective abortions.

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Introduction

With a high fertility rate of 3.6 and only 25% of the population using modern contraception, Pakistan is marred with one of the highest rates of unintended pregnancies in the world at 93 per 1,000 women aged 15-49.[1-3] This results in 4.4 million annual unintended pregnancies, of which 54% are resolved through, predominantly, unsafe abortions.[2] Majority of these abortions are clandestine and are performed under poor safety conditions, thereby posing a serious risk to the health and lives of the women.[4] This can be seen in the high rate (14 per 1,000) of women who are treated for post-abortion complications due to poor conditions and unsafe procedures.[2] The Pakistan Penal Code 1948 states that an abortion can be legally sought and performed to save the mother's life or to provide "necessary treatment".[4] However, the ambiguity in the statement leaves a lot of room for varying, and mostly restrictive, interpretation by both healthcare providers (NGOs, and public and private providers) and the women concerned.[4,5] Women feel reluctant to approach qualified professionals to procure a safe abortion due to lack of knowledge of the practice, or the possibility of committing a criminal offence, while medical professionals may be averse to the practice due to their beliefs and the fear of being labelled an "abortionists".[5]

This refusal to provide a medical service that women are entitled to stems from an extremely negative attitude of service providers towards safe abortions and incorrect knowledge about the legality of abortions under the Penal code as well as Islamic jurisprudence.[5] No psychometric tool has yet been validated for assessing providers' attitude, and only a handful of studies have attempted to assess the attitude of healthcare providers towards safe abortions in Pakistan.[2,4,5] Accurate assessment of attitude is critical for screening providers with a negative attitude and developing Values Clarification and Attitude Transformation (VCAT) programmes for transforming their attitudes. Healthcare providers' attitude towards safe abortion and post-abortion care (SA/PAC) is critical for creating a cordial environment for women to avail services.

Methods and Results

Since there is no precedent for a psychometric scale to measure attitude towards SA/PAC in Pakistan, we adapted and refined an existing scale.[6] Twenty-six culturally-congruent items, that focussed on multiple dimensions around attitude towards SA/PAC,[7,8] were developed on a seven-point Likert scale. Data was collected through a cross-sectional survey of NGO workers from June to July 2017. Respondents were primarily based in the Karachi office of an NGO that provides SA/PAC services in Pakistan. A-priori sample size calculation for structural equation models determined the minimum sample to be 113 with an anticipated effect size of 0.3, desired statistical power of

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Table-1: Reliability and Validity of the Final Validated Constructs.

Factor	Items	Factor Loadings	Average Variance Extracted	Coefficient H	Ordinal Alpha
Attitude towards Elective Abortions	If a pregnant woman knows she cannot afford to feed that child then an abortion is a moral decision.	0.75	0.57	0.79	0.79
	Safe abortions within the first 16 weeks should be available as an alternative for unmarried, pregnant teenagers.	0.78			
	A pregnant woman not wanting to have a child should be offered the option of a safe abortion in the first 16 weeks	0.73			
Moral Attitude towards SA/PAC	Abortion should be considered killing a person.	0.82	0.64	0.92	0.88
	People should consider those having an abortion immoral.	0.87			
	No one has the right to decide the life or death of a foetus.	0.78			
	An abortion is immoral no matter what the circumstances are.	0.73			

0.8, five latent variables, and 26 observed variables.[9] Data were collected through an online survey disseminated through the NGO's email network, and, with a response rate of 93%, a sample of 106 was achieved. Data were also collected on sociodemographic characteristics, and legal and contextual knowledge of SA/PAC in Pakistan. Statistical analyses were performed using LISREL Version 8.8 and Stata MP Version 13.1. DeVellis' scale development guidelines were utilised for data analysis.[10]

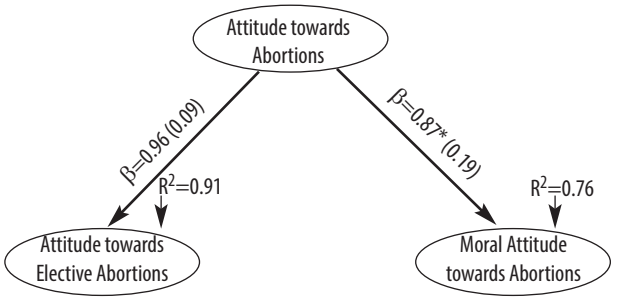
Exploratory factor analysis (EFA) was used to identify a parsimonious set of factors to assess attitude towards SA/PAC. Since scale items were ordinal, unweighted least squares estimation with polychoric correlations was used. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy determined the sample size to be average for factor analysis by providing a value of 0.75.[11] EFA revealed the two-factor solution as the optimal solution with one factor pertaining to Attitude towards Elective Abortions (EA) and the other to Moral Attitude (MA) towards SA/PAC. Seven items with loadings greater than 0.5 and conceptual underpinnings were retained in the final scales (Table-1).[12] Factors' reliability and validity was established through Average Variance Extracted (AVE), Coefficient H, and Ordinal Alpha.[13,14] AVE for both factors exceeded 0.5 while Ordinal Alpha and Coefficient H for both factors exceeded 0.75. (Table-1) A subjects-to-variables (STV) ratio approach was used to provide an estimate of whether this sample size would suffice. An STV ratio of ≥ 20 is recommended.[10] The final scale consisted of seven items and thus provided with an STV ratio of 15.

Table-2: Sociodemographic Characteristics.

Characteristics	Mean±SD or n (%)
Age (years)	33.92±9.4
Gender	
Male	73 (68.9)
Female	32 (30.2)
Prefer not to say	01 (0.9)
Highest level of education attained	
Below Graduate	21 (19.8)
Graduate	82 (77.4)
Doctoral	03 (2.8)
Marital Status	
Single	19 (17.9)
In a relationship	03 (2.8)
Engaged	01 (0.9)
Married	81 (76.4)
Widowed	02 (1.9)
Years of Professional Experience	12.27±6.4
Years of Experience at NGO	05.51±4.3
Do you feel that your religious beliefs influence your views towards abortions?	
Yes	48 (35.8)
Do you think it is legal for women to access safe abortion services within the first sixteen weeks in Pakistan?	
Yes	73 (69.8)
In your opinion, how many pregnancies are terminated through abortions in Pakistan?	
Around 2.25 million	23 (21.7)

Descriptive statistics (Table-2) were used to review the sample's characteristics. There were 73 (69%) men and 32 (30%) women in the sample; mean age of the sample was 33.9±9.4 years with 82 (77%) respondents holding graduate degrees, and 81 (76%) respondents were married. Mean number of years of professional experience was 12.3±6.4 years, while the respondents had been working for the NGO for an average of 5.5±4.3 years. Furthermore, 48 (36%) respondents felt their religious beliefs influenced their view towards SA/PAC and 33 (31%) respondents thought that it is not legal for women to access SA services in Pakistan. Moreover, only 23 (22%) respondents were able to correctly answer the number of pregnancies terminated through abortions in Pakistan which was reflective of low contextual knowledge.

Structural Equation Modelling (SEM) was undertaken to validate the factor structure and explore relationships between the two factors.[15] Satorra-Bentler (SB) χ^2, Comparative Fit Index (CFI), Standardised Root Mean Square Residual (SRMR), Akaike Information Criterion (AIC), and Root Mean Square Error of Approximation (RMSEA) were used to test the fit of the models.[16] A measurement model of seven items with two factors was run through SEM using Diagonally Weighted Least Squares (DWLS)



Structural Equation Modeling Equation

The hierarchical factor explains 91% of the variance in Attitude towards Elective Abortions and 76% of the variance in Moral Attitude towards Abortions.

Model Goodness of Fit Statistics

SB χ^2 (12, 106) = 14.86 (p=0.25), CFI = 0.996, SRMR = 0.058, AIC = 46.86, RMSEA = 0.048)0.000; 0.116)

Figure: Final Hierarchical Model for Attitude towards Abortions.

estimation fitted to polychoric correlations and asymptotic covariances.[17] The model yielded a good fit [SB χ^2 (13, 106) = 17.47 (p=0.18), CFI = 0.993, SRMR = 0.058, AIC = 47.47, RMSEA = 0.057 (0.000; 0.120)]. Both factors were highly correlated (r= 0.83, p<0.001) indicating the presence of a hierarchical factor of attitude towards SA. A hierarchical model (Figure) was tested, which yielded a marginally better fit [SB χ^2 (12, 106) = 14.86 (p=0.25), CFI = 0.996, SRMR = 0.058, AIC = 46.86, RMSEA = 0.048 (0.000; 0.116)]. Since the hierarchical model fit better, it was accepted as the final model. The hierarchical factor explained 91% of the variance in EA and 76% of the variance in MA. (Figure)

Overall attitude towards SA/PAC was negatively correlated with the belief that attitude is influenced by religion (r = -0.45, p<0.001), and positively correlated with correct legal knowledge (r = 0.47, p<0.001) and correct contextual knowledge (r = 0.26, p<0.001).

Conclusion

This scale was developed through rigorous latent variable methodology and has reduced measurement bias. Furthermore, confirmation of a hierarchical factor indicates that the scores of the scales can be simply summed up to create a composite variable for attitude towards SA/PAC. This scale can be implemented routinely to recruit providers and implementers with a pre-existing positive attitude towards SA/PAC, and screen providers with a negative or neutral attitude towards SA/PAC. Moreover, Value Clarification and Attitude Transformation (VCAT) for SA/PAC programmes can be developed and tailored in accordance with the dilemma of the providers (i.e. dilemma with morality of SA/PAC versus dilemma with the element of choice). The study further highlights the importance of legal and contextual knowledge as it has a direct impact on individuals' attitude.

The study had a small sample taken from one NGO in Pakistan; however, all the respondents were implementers or had significant exposure to the operational environment of providing SA/PAC services. The questionnaire was prepared in English, and would require a subsequent validation for implementation in Urdu with service providers. Future studies should test this scale with different subpopulations within the health sector and test its application with the development of VCAT programmes.

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SHORT REPORT

Digitalisation provisions for controlling depression in developing countries: Short review

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Abstract

Depression is a global health issue which is associated with disability, absenteeism, decreased productivity and high suicide rates. It is the fourth most common cause of disability globally and by the year 2020 it will be the second leading cause of disease burden. In Pakistan, the prevalence of depression is 45.9%. A unique and promising method for addressing the issue is mobile health (m-health). It refers to the utilisation of mobile technology to support various aspects of healthcare. Electronic record, SMS, internet, wearable devices and mobile applications are some of the digitalisation approaches used to bridge the treatment gap in depression through assuring privacy of patients, improving accessibility, reducing taboos related to depression, save cost for patients and reduce hospital burden and consultation time; these will be accessible in remote areas as well. Therefore, this short review is aimed to highlight the m-health forecasting for controlling depression and positional use in developing countries.

Keywords: Digitalisation, Depression and M-health.

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Introduction

Mental health has become a global health issue affecting different age groups and socioeconomic backgrounds.[1,2] Globally, mental and behavioural illnesses account for 7.4% of disability-adjusted life years (DALYs). With escalation in cases of depression to 38% since 1990, depressive disorders ranked as 11th highest cause of DALYs.[2] Depression is one of the most common recurrent mental disorders that affect both the mind and body and leads to decreased productivity, workplace absenteeism and high suicide rate.[3-7] It is the fourth most common cause of disability and by the year 2020 it will be the second leading cause of disease burden globally.[8]

A cross-national research in developing countries revealed that prevalence of depression in urban Pakistan was 45.9%,[9] 29% in rural Bangladesh,[10] 6.1% in a peri-urban clinic of Uganda[11] and 63.2% in India.[8,12] Factors such as low income, unavailability of insurance, untimeliness, privacy and stigma attached to psychiatric illnesses, lead to scarce and unfair psychiatric resources. These factors also create barriers for patients limiting access to treatment and decreasing their retention in treatment.[13] Therefore, there is a need for some unique strategy for addressing mental illness.

In 2008, the first m-health application software became available, and since then more than 10,000 applications have been developed for smart phones.[14] Of these apps, 6% are purely used to evaluate mental health outcomes.[14,15] Mobile phones and apps signify an opportunity to screen and intervene depressive patients.[16,17] Various studies conducted in Western countries regarding mobile health intervention for depression show that this technology provides the facility of delivering interactive tools for depressive patients in their environment — also called ecological momentary intervention.[18]

To meet the Sustainable Development Goal (target 3.8) of good health and well-being, which asks for an end to communicable diseases, achieving universal health coverage, and providing access to safe and effective medicines and vaccines by 2030,[19] need innovative solution. Globally the uptake of digitalisation has been a remarkable impact on the healthcare delivery system. Digitalisation approaches include electronic record, tele-health, SMS, internet, wearable, devices, mobile health, and mobile applications, and offers to bridge the gap in the treatment of depression by providing access to information on depression and encouraging health seeking behaviour.[20] Electronic health provides enriched medium for information and communication that can be transferred.[21] Mobile applications allow global access, empowering assessment of patients with depression and other mental illnesses.[16] e-health also overcomes multiple barriers in treatment, including cost, timeliness and concerns regarding confidentiality therefore levels of satisfaction is high among patients with emental health programme as a self-care digital tool.[17]

The studies included in this review make use of digitalisation for depressive patients in our country. This innovation will help us in detecting actual and hidden cases of depression as there is a stigma associated with this

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illness. Furthermore, early screening and diagnosis of cases is also possible which helps in prompt and optimised treatment. Moreover, it assures the privacy of patients, saves travel cost, consultation time and is also accessible in remote areas. Thus, there is a dire need for m-health /digitalisation services in our region that will lessen public health burden, hospital cost and stay. Therefore, the current study is designed to emphasise m-health opportunities and prospects that should be utilised for depressive patients in Pakistan. Therefore, this short review is aimed to highlight the m-health forecasts for depression as there is a dearth of using this innovation in developing countries, and its impact on sustainable development goals.

An initial literature review was carried out to develop this report. The idea of this short review came when one of the authors working at the Aga Khan Development Network's eHealth Resource Centre (AKDN eHRC) was applying this technology for maternal health of patients in remote and rural settings of lower-middle income countries. It was a unique programme, helped to overcome the three major challenges for providing healthcare — access, quality and cost — in low-resource settings through Information Communication technology such as tele-consultations and eLearning sessions. The intention was not to do a systematic review of all the available literature, rather selected articles were reviewed for building this paper. This paper focus on digitalisation, its roots in the public health perspective of depression and its reduction.

The role of m-health is evident in the developed world. Examples of such interventions include 'Mobilyze', an app to target depression; it provides ecological momentary intervention in which context-aware system detects participants' location, activity, social context, mood and emotions.[18] Likewise another intervention app, 'SituMan' provides situation awareness. 'MoodBuster', an ecological momentary assessment and intervention mobile application, is used for self-assessment of depressive patients.[13] A randomised trial on young adults (YAs) revealed that eSMART –MH was based on critical parameters such as necessity, acceptability, fidelity, and safety. However, feasibility findings were mixed.[22] A study conducted in Australia, Canada, New Zealand, and the United Kingdom included 2,538 participants who monitored depression with the help of mobile phone app.[23] Of the participants, 322 participants had severe depressive symptoms that were undiagnosed previously and were directed through an app to seek immediate advice from a healthcare provider. Moreover, a follow-up message was also sent to them after one month for advice from healthcare professional through mobile phone. The study revealed that around 74% of the participants who had severe scores completed the follow-up.[23] Another study conducted in China showed that a smartphone application called iHope was used to perform daily ecological momentary assessment (EMA) of different mental illnesses, including depression, in outpatients. This study revealed the viability of smartphone-based EMA in patients with depression.[24] A study conducted in Kenya used mobile based mental health Global Action Intervention Guide (mhGAP-IG)for depression.[25] This study concludes that the use of mobile-based guide in remote healthcare settings is important because mostly non-mental healthcare specialists tackle all mental health problems. This mobile-based mhGAP-IG screening save travel cost, consultation time and utilisation of evidence-based screening tool.[25]

The "Kokoro" app is a smartphone-based Cognitive Behaviour Therapy (CBT) programme which has shown viability and suitability of therapy for treatment-resistant depression.[26] Moreover, the "myCompass" is another programme for different mental illnesses, including mild to moderate depression, that track symptoms and give medication reminders.[27] Tele-mental health has widely been used for the benefit of patients with depression.[28] Moreover, improvement in symptoms of depression due to tele-mental health than in-person groups is also reported.[28] Another study conducted in community clinics also revealed that patients' access improved in depression-specific care using tele-psychiatry.[29] Studies have also pointed out that utilisation of tele-psychiatry can help in long-term cost savings.[30]

This short review concluded that mobile phones have reached almost all strata of the world and provide such treatment platform that build continuous two-way connection between the patient and healthcare staff. Mobile technology helps in monitoring an individual's physiological and psychological state. The use of this technology in healthcare interventions may lessen the rising trend of healthcare costs that ultimately improve access to health services. Thus, digitalisation should be made use of in developing countries for depressive patients, particularly in Pakistan.

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