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A Test of the Inventory of Attitudes toward Seeking Mental Health Services

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Abstract

This study investigates the construct validity, composite reliability, and concurrent validity of the *Inventory of Attitudes toward Seeking Mental Health Services* (IASMHS; Mackenzie, Knox, Gekoski, & Macaulay, 2004). A large sample of Irish police officers (N = 331) participated in the study. Confirmatory factor analysis supported the 3-factor structure of the scale, while composite reliability results demonstrated that the IASMHS possessed excellent internal reliability. Structural equation modelling indicated that help-seeking propensity was the strongest predictor of intentions to engage in psychological counselling followed by psychological openness. Neuroticism was a weak, significant predictor of intentions. Implications of these results are discussed in relation to improving utilization rates of mental health services.

Key Words: Counselling; attitudes; mental health services; confirmatory factor analysis (CFA); structural equation modelling (SEM); bifactor modelling.

Introduction

According to the World Health Organisation an estimated 200 million people globally are affected by serious mental health problems (Mollica, 2000). Available data, however, suggests that only around one-third of those experiencing mental health difficulties actually make treatment contact (Kessler et al., 2009). This is of concern not only because of the deleterious impact on individual's lives, but also because of the associated economic and societal costs of untreated mental health problems (Kessler et al., 2009).

A number of psycho-social and demographic factors have been found to explain variation in attitudes towards, and intentions to, seek psychological help (e.g., Bartels, 2003; Segal, Coolidge, Mincic, & O'Riley, 2005; Vogel, Wester, Wei, & Boysen, 2005). How favourable and effective one believes psychological counselling to be, one's own belief in their capacity to engage in counselling, and perceptions of subsequent social rejection following counselling attendance, have been identified as particularly influential (e.g., Hyland, McLaughlin, Boduszek, & Prentice, 2012; Vogel & Wester, 2003).

Research also suggests that females may be significantly more likely than males to hold favourable attitudes towards utilising mental health services (e.g., Chandra & Minkovitz 2006; Raunic & Xenos, 2008), although some studies have shown that males and females do not differ in their attitudes or intentions towards the utilisation of mental health services (e.g., Kelly & Achter, 1995; Vogel & Wester, 2003).

Additionally, personality factors have been suggested to impact upon individuals' help-seeking attitudes and intentions. Jagdeo, Cox, Stein, and Sareen (2009) found that antisocial personality disorder was associated with greater negative attitudes towards help-seeking using data from the US National Comorbidity Survey (NCS) ($n = 5877$) and the Ontario Health Survey (OHS) ($n = 6902$).

Given the disparity between mental health service needs and service utilization a more comprehensive understanding of the factors involved in counselling-seeking behaviour is required. The *Inventory of Attitudes toward Seeking Mental Health Services* (IASMHS; Mackenzie, Knox, Gekoski, & Macaulay, 2004) is a 24-item scale designed to assess the attitudinal factors that influence the seeking of mental health services. This scale was developed based upon Fisher and Turner's (1970) *Attitudes toward Seeking Professional Psychological Help Scale*. Despite being developed upon a clear theoretical foundation, and its increasing use in research (James & Buttle, 2008; Loya, Reddy, & Hinshaw, 2010; Mackenzie, Gekoski, & Knox, 2006; Mojaverian, Hashimoto, & Kim, 2012; Floersch et al., 2009), only one study has sought to further explore the underlying factor structure of the IASMHS.

The IASMHS initially included 41-items, however the results an exploratory factor analysis (EFA) using maximum likelihood estimation among a sample of 208 adult volunteers (Mackenzie et al., 2004) reduced the number of items in the scale to 24. Results indicated that the 24-item scale could be explained in terms of three correlated factors, which accounted for 43% of variance: (a) *Psychological Openness* (the degree to which an individual is open to acknowledging the presence of a psychological problem and to seek professional care for such a problem), (b) *Help-Seeking Propensity* (one's willingness and perceived ability to seek help for psychological problems), and (c) *Indifference to Stigma* (how concerned an individual would feel were significant others to discover that they were receiving psychological care). Internal consistency coefficients for the IASMHS subscales were reported to be good with Cronbach's alphas of .82 (psychological openness), .76 (help-seeking propensity), and .79 (indifference to stigma). Factor correlations were moderate with r values ranging from .37 to .47. In the same paper, using an independent sample of 293 undergraduate university students and employing confirmatory factor analysis (CFA) techniques, Mackenzie and colleagues

(2004) reported that they replicated the three-factor solution indicated by the EFA. Model fit was acceptable and factor correlations ranged from $r = .26$ to $.43$.

Importantly however, their analysis did not consider potential competing models of the factor structure of the scale, such as unidimensional (see Figure 1) and bifactorial conceptualisations (see Figure 3). Moreover, the only model fit statistics reported were the root mean square error of approximation (RMSEA; $.04$) and standardized root mean square residual (SRMR; $.06$). Normally, Comparative Fit Index (CFI; Bentler, 1990) and Tucker Lewis Index (TLI; Tucker & Lewis, 1973) values are also reported to provide an objective method for determining model fit, by indicating how much better the theoretical model fits the data compared to a baseline model. The absence of comparison models, and frequently used measures of model fit indicate the need for further research on the structure of the IASMHS in order to develop a more robust understanding of the appropriate scoring scheme of the scale.

Further analysis by the authors did however indicate that scores on the IASMHS were positively correlated with both past use of and future intentions to use mental health services. Specifically, both psychological openness and help-seeking propensity exhibited moderate correlations to past service use; whereas, past service use and indifference to stigma were weakly correlated. Additionally, both psychological openness and indifference to stigma exhibited moderate correlations with intentions to seek mental health services; whereas, help-seeking propensity was highly correlated with intentions to seek mental health services.

Law enforcement officers frequently encounter stressful situations which have the potential to negatively impact upon their psychological well-being (e.g., dealing with violent individuals, attending a sudden death, witnessing traumatic events; Brown, Fielding, & Grover, 1999; Selye 1978). Indeed, research indicates that a significant minority of police officers experience mental health problems. Berg et al. (2006) reported that 11.2% of 3,272 Norwegian police officers demonstrated symptoms of severe anxiety while 8.2% reported symptoms of

severe depression. A comparable rate of severe depression (8.6%) was also reported by Andrews et al. (2008) in their study of a representative sample of New York police officers. Moreover, among these New York police officers, 30.5% displayed symptoms of clinical or sub-clinical posttraumatic stress disorder. Given the frequency with which police officers experience stressful and traumatic events, and the prevalence of mental health problems among members of the profession, it is imperative that a comprehensive understanding of the factors involved in influencing police officers willingness to engage in professional psychological counselling is attained.

The current analysis will be performed among a sample of law enforcement officers therefore this analysis will provide important insight into the factor structure of the scale within this unique population. Given the paucity of research examining the factor structure of the IASMHS (Mackenzie et al., 2004), the primary aim of the current study is to investigate the construct validity of the scale through the use of CFA strategies. **The IASMHS has the potential to offer researchers and clinicians valuable information that can improve understandings of the psychological factors central to the uptake of, and engagement in, psychological counselling services. It is critical therefore that a robust assessment of the scale's factor structure be undertaken. This process will contribute to a more rigorous understanding of the appropriate scoring scheme for the scale which will aid clinicians and researchers who wish to utilize this measure.**

This study also seeks to further assess the scale's internal reliability via the application of composite reliability analysis. Finally, the current study aims to assess the concurrent validity of the IASMHS by determining the relationship between the appropriate factors of the scale and intentions to engage in psychological counselling while controlling for the effects of age and personality. Given the lack of previous factor analytic studies on the IASMHS, we did

not formulate a specific hypothesis concerning which of the three tested models would best fit the data.

Method

Participants

The sample for the current study consisted of 331 (Males: $n = 202$; Females: $n = 129$) active and retired members of the national police force of the Republic of Ireland. Of the officers recruited, 302 (91%) were currently serving members of the Irish police force, while 29 (9%) were retired. Participants ranged in age from 20 to 77 years, with an average age of 28.41 years ($SD = 8.63$). Just under half the sample of officers were stationed in rural areas (45%, $n = 149$), 41% were stationed in suburban areas ($n = 136$), and 14% were stationed in urban areas ($n = 46$). The majority of officers who participated in this study were recent entrants into the police service with 63% of respondents indicating that they had been serving for two years or less ($n = 209$). Approximately half were married (48%, $n = 159$), while the remaining participants either resided with parents (27%, $n = 89$), lived with other family members (3%, $n = 10$), or lived alone (22%, $n = 73$).

Procedure

The majority of study participants were recruited during a training seminar ($n = 259$), while the remaining officers were recruited via formal written requests ($n = 72$). Appropriate authorization was granted from the relevant officials to carry out the study. In total, 532 members were approached to complete the research questionnaire, and 365 volunteered their participation (68%). However due to overwhelming missing data in 34 returned surveys only 331 responses were retained for the final analysis (62%). Participants were required to complete an anonymous self-report, paper-and-pencil questionnaire booklet which included an instruction sheet and a consent form attached to the front of the booklet. Participants were

assured about confidentiality and informed that their participation was voluntary. Completed questionnaires were returned by the participants to their superior officer in sealed envelopes, and were subsequently returned to the principal investigator.

Measures

The Inventory of Attitudes toward Seeking Mental Health Services (IASMHS: Mackenzie et al., 2004) is a 24-item scale designed to measure an individual's attitudes towards seeking mental health services. The IASMHS was developed in order to measure three factors labeled (a) Psychological openness, (b) Help-seeking propensity, and (c) Indifference to stigma. Psychological openness reflects the degree to which an individual is open to acknowledging the presence of a psychological problem and to seek professional care for such a problem. Help-seeking propensity reflects one's willingness and perceived ability to seek help for psychological problems. Indifference to stigma refers to how concerned an individual would feel if significant others were to discover that they were receiving psychological care. Each factor is proposed to be measured via 8 items and each item is measured using a five point Likert-scale ranging from 0 ("disagree") to 4 ("agree").

Intentions to Participate in Psychological Counselling: Intentions were measured as part of a larger questionnaire designed to measure the various constructs of the Theory of Planned Behavior (Ajzen, 1991). This questionnaire was constructed according to the guidelines set forth by Ajzen (1991, 2002). The questionnaire was based upon a fictitious scenario which included the four elements of time, context, action, and target, as proposed by Ajzen and Fishbein (1977). The scenario describes an event that took place six weeks previously in which an individual witnesses a severe road traffic accident. In the intervening six weeks this individual begins to experience significant personality changes. The individual is reported to now experience prolonged periods of extreme sadness, lack of energy, distressing thoughts related to the traumatic event, reduced interest in normally pleasurable activities,

severe panic attacks while outside, and refusal to leave the house even for work. A friend of this individual attends a G.P. about the matter and the G.P. recommends that the described person should attend a professional psychologist for counselling within the next week. An appointment is thus made for next week. Participants in this study are asked to place themselves in the position of this fictitious person and to complete the questions that follow (see Appendix A for the full vignette). Behavioural intentions were measured via three items (Cronbach's alpha = .77). An example of which is the following; *"How likely is it that you will intend to participate in counselling with a professional psychologist within the next week?"* Each item was measured along a seven point Likert scale ranging from 1 (extremely unlikely) to 7 (extremely likely) and higher scores on this scale indicate stronger intentions to engage in counselling.

Eysenck Personality Questionnaire Revised (EPQ-R: Eysenck, Eysenck & Barrett, 1985). The EPQ-R is a 48-item inventory consisting of four sub-scales of 12 items each: Extraversion (E; Cronbach's alpha = .75), Neuroticism (N; Cronbach's alpha = .77), Psychoticism (P; Cronbach's alpha = .61) and the Lie scale (L). Items are scored on a *Yes* (1) and *No* (0) format and possible scores range between 0-12, with higher scores indicating higher levels of each personality trait. Sample questions include; *"Do you often feel lonely?"* (N), *"Do other people think of you as being very lively?"* (E), *"Is it better to follow society's rules than go your own way?"*(P), and *"Do you always practice what you preach?"* (L).

Analysis

Descriptive statistics and preliminary analysis were conducted within Statistical Package for the Social Sciences (SPSS) 21. Establishing the factorial structure of the IASMHS was determined through the use of traditional CFA techniques along with confirmatory bifactor modelling procedures (see Reise, Moore, & Haviland, 2010). Confirmatory bifactor modelling is a conceptually distinct alternative to traditional CFA models in which the covariance among

items of a scale is explained in terms of a single general latent factor, and two or more independent (uncorrelated) method-factors reflecting the unique covariance that occurs among particular groups of items. Reise, Moore, & Haviland, (2010) argue that bifactor models should always be used as a baseline comparison model, rather than the traditional one-factor models. This is because a bifactor model is capable of retaining a unidimensional conceptualisation while also acknowledging the unintended and possibly meaningless covariance that can occur between particular item sets in a scale due to wording effects and can thus present spurious evidence of multidimensionality.

Three alternative models of the latent structure of the IASMHS were specified and estimated using Mplus version 6.12 (Muthen & Muthen, 1998 - 2010) with robust maximum likelihood (MLR) estimation. Two of these models were conceptualized as traditional CFA models. Within these models, items were restricted to load only onto a single latent factor while in the bifactor model, each item was allowed to load onto two factors; a general factor and one of the three grouping factors (psychological openness, help-seeking propensity, and indifference to stigma), as per recommendations (Reise, et al., 2010). In all cases measurement error terms remained uncorrelated, as suggested in previous research (Boduszek, Hyland, Dhingra, & Mallett, 2013; Bollen, 1989).

Model 1 is simple unidimensional model of the IASMHS in which all 24 items load onto a single latent factor (Figure 1). Model 2 is an intercorrelated three-factor solution measuring psychological openness (8 items), help-seeking propensity (8 items), and indifference to stigma (8 items). This model represents the intended structure of the scale and is consistent with Mackenzie et al.'s (2004) initial design (Figure 2). Model 3 is the bifactorial model recommended by Reise and colleagues (2010) as a superior comparison model. In this bifactor conceptualisation, all 24 items load onto a single general factor as well as one of three grouping factors (psychological openness - 8 items; help-seeking propensity - 8 items; and

indifference to stigma - 8 items) which exist at the same conceptual level as the general latent factor (Figure 3).

INSERT FIGURE 1 HERE

INSERT FIGURE 2 HERE

INSERT FIGURE 3 HERE

The overall fit of each model and the relative fit between models were assessed using a range of goodness-of-fit statistics and assessment of the appropriateness of the model parameters. The chi-square (χ^2) statistic assesses the sample and implied covariance matrix, and a good fitting model is indicated by a non-significant result. However, the χ^2 statistic is strongly associated with sample size, and as such good models tend to be over-rejected. Therefore, Tanaka (1987) suggested that a model should not be rejected simply on the basis of a significant χ^2 result. Accordingly, it is recommended that researchers examine the ratio of the χ^2 value to the degrees of freedom (*df*), and according to Klein (1994), any model with a χ^2 -to-*df* ratio of less than 3:1 indicates a good fitting model. The Comparative Fit Index (CFI; Bentler, 1990) and the Tucker Lewis Index (TLI; Tucker & Lewis, 1973) are measures of how much better the model fits the data compared to a baseline model where all variables are uncorrelated. For these indices values above .90 indicate reasonable fit while values above .95 indicate good model fit (Bentler, 1990; Hu & Bentler, 1999). In addition, two more absolute indices are presented; the standardized root mean-square residual (SRMR; Joreskog & Sorbom, 1981) and the root mean-square error of approximation (RMSEA; Steiger, 1990). Ideally these indices should be less than .05 however values less than .08 also suggest adequate fit (Bentler, 1990; Hu & Bentler, 1999; Joreskog & Sorbom, 1993). Furthermore, Akaike Information Criterion (AIC; Akaike, 1974) and Bayesian Information Criterion (BIC; Schwarz, 1978) were used to evaluate the alternative models, with the smaller value in each case indicating the best

fitting model. The CFI, RMSEA, BIC, and AIC all have explicit penalties for model complexity.

Results

The mean score for the IASMHS was 54.47 ($SD = 14.37$; Median = 52). Scores ranged from 15-93 (possible range of scores were from 0-96).

Measurement Models

Table 1 reports the fit indices from the three tested models of the IASMHS. Based on these findings, the simple unidimensional model structure was rejected as a generally poor fitting model. The bifactorial design and the proposed three-factor structure displayed extremely similar model fit results. Both models produced statistically significant χ^2 results, however, both models produced χ^2 -to-df ratios of less than 2:1 suggesting good model fit. While both models produced less than satisfactory TLI results, CFI results indicated acceptable model fit, and RMSEA and SRMR results indicated adequate-to-good model fit. It was also difficult to ascertain the appropriate factorial solution based upon the comparative fit indices. The bifactor model produced a slightly lower AIC value which suggests it to be slightly statistically superior; however, the 3 factor model produced a lower BIC value indicating its statistical superiority.

Given that it was impossible to determine an appropriate model on purely statistical grounds, the three factor model was favoured on the basis of theoretical consistency and parsimony.

INSERT TABLE 1 HERE

The adequacy of the 3 factor solution is also evident with respect to the model parameter results. All factor loadings were positive and statistically significant ($p < .0005$) and factor loadings were generally moderate-to-strong and all were greater than .30 (see Table 2).

Correlations between the latent factors were positive and statistically significant ($p < .0005$). Psychological openness was moderately correlated with both help-seeking propensity ($r = .55$) and indifference to stigma ($r = .65$); and indifference to stigma and help-seeking propensity were also moderately correlated ($r = .47$).

INSERT TABLE 2 HERE

Reliability Results

The use of traditional measures of internal reliability such as Cronbach's alpha have been criticised within a latent variable modelling context given the propensity to over- or underestimate scale reliability (see Raykov, 1998). In order to provide a more rigorous assessment of the internal reliability of the IASMHS (Mackenzie et al., 2004) the current study investigated the composite reliability (ρ_c) of the measurement properties of the scale. Values greater than .60 are generally considered acceptable (Bagozzi & Yi, 1988; Diamantopoulos & Siguaw, 2000). The results found that psychological openness ($\rho_c = .70$), help-seeking propensity ($\rho_c = .76$), and indifference to stigma ($\rho_c = .77$) possessed satisfactory composite reliability.

Structural Model

The concurrent validity of the IASMHS was subsequently assessed using structural equation modelling procedures. Figure 4 indicates that four latent variables were included in the model: the 3 factors of the IASMHS and a latent factor representing intentions to engage in counselling. All 3 items used to measure intentions possessed positive, statistically significant ($p < .0005$), and strong factor loadings ($> .60$). Age and personality (psychoticism, extraversion, and neuroticism) were treated as observed variables within the model.

The model produced acceptable fit statistics across 3 of the 5 fit indices ($\chi^2 = 666.22$, $df = 410$, $p < .0001$; RMSEA = .04 (CI 90% = .04/.05); SRMR = .06; CFI = .86; TLI = .84)

and explained 45% of variance in intentions. Results indicated that 2 of the 3 factors of the IASMHS significantly predicted intentions. Help-seeking propensity ($\beta = .51, p < .001$) was found to be a moderately-strong, positive predictor of intentions, while psychological openness also positively predicted intentions, although the association was weaker ($\beta = .25, p = .05$). Of the covariates included in the model, only neuroticism emerged as a significant predictor of intentions ($\beta = .14, p = .01$).

INSERT FIGURE 4 HERE

Discussion

This study was conducted in order to gain a better understanding of the psychometric properties of the IASMHS (Mackenzie et al., 2004). This scale offers potential to researchers who are interested in identifying critical psychological factors that can prevent the utilization of mental health services, so that uptake of these vital services can be improved; and also to clinicians who would have access to a reliable and valid scale capable of identifying key attitudinal factors that can predict disengagement with counselling. We sought to add to the original validation study of Mackenzie et al. (2004) by investigating a range of structural models within a sample of law enforcement officers. Law enforcement personnel are an important population to study given the frequency with which mental health difficulties are observed within members of this profession (e.g., Andrews et al., 2008; Berg et al., 2006).

A unidimensional structure was invalidated, suggesting that all 24 items of the scale do not relate to a single psychological construct. It is often the case however that a unidimensional structure of a measurement scale does not fit the obtained data even when the tested scale is designed to measure a single construct. Confirmatory bifactor modelling is a statistically superior method of assessing the possible presence of a single underlying psychological mechanism hence the inclusion of such a model in the present analysis.

Our analysis indicated that both the bifactor model and the 3-factor solution proposed by Mackenzie et al. (2004) yielded acceptable model fit. Given that the results were similar for the two models, it was not possible to determine the superiority of either model simply on statistical grounds. We concluded that the 3-factor model was preferable for two reasons. First, the 3-factor model is consistent with the theoretical foundations of the scale's construction; and second, the 3-factor model also included fewer model parameters and is therefore a more parsimonious solution to the bifactorial model.

These results are important because they suggest that the bifactor model is a viable alternative conceptualization of the factor structure of the IASMHS. These findings support Reise et al. (2010) who stated that a bifactorial model conceptualization is a superior baseline comparison model than traditional unidimensional conceptualizations, and indicate that future research efforts to determine the factor structure of the IASMHS in alternative populations should include a bifactor model in statistical comparisons. Model parameter results for the 3-factor solution provided further support for the construct validity of the scale indicating that all items displayed statistically significant and robust factor loadings on each of the respective latent factors.

Subsequent to the determination of the appropriate factor structure of the scale, we evaluated the reliability of the IASMHS through the use of composite reliability analysis. Composite reliability analysis was selected rather than the traditionally used Cronbach's alpha coefficient as the latter has been demonstrated to be unreliable when measuring latent variables (Raykov, 1998). All three factors were found to possess satisfactory internal reliability providing further support for the internal consistency of the IASMHS. These results considered in their entirety provide reasonably robust evidence of the scales reliability and validity.

Once the appropriate scoring scheme of the IASMHS was established, we sought to determine the relationship between the different factors of the scale (psychological openness, help-seeking propensity, and indifference to stigma) to intentions to participate in psychological counselling. We assessed this relationship within the context of a structural equation model and importantly we also controlled for age and personality traits. Both were important to include in the analysis given that only neither has received significant empirical attention as possible predictors of mental-health related behaviours. Controlling for these factors not only provides insight into their respective roles in predicting intentions to engage in counselling, but also allows for a clearer determination of the role of the IASMHS factors in predicting intentions to utilize mental health services.

Results of the SEM analysis provided support for the proposed model with the RMSEA, SRMR, and χ^2 -to-df ratio results all indicating satisfactory model fit. Furthermore, the model was capable of explaining 45% of variance in levels of intentions to engage in counselling. The explanatory power of the IASMHS is consistent with previous investigations employing the Theory of Planned Behaviour (TPB: Ajzen, 1991) to explain intentions to engage in counselling (Hyland et al., 2012). These results indicate that the IASMHS is a valid method of predicting counselling-seeking behaviours and equal to that of an existing and well validated health behaviour model.

Consistent with previous results from Mackenzie et al. (2004) help-seeking propensity was found to be the strongest predictor of intentions to engage in psychological counselling. Psychological openness also displayed a significant direct effect on intentions, however unlike the results of Mackenzie and colleagues, indifference to stigma exhibited no significant association with intentions to use mental health services. These results are generally in-line with previous work by Hyland et al. (2012). In their analysis applying the TPB, the self-efficacy component of the perceived behavioural control (PBC) factor displayed the strongest predictive

influence on intentions to engage in psychological counselling. The help-seeking propensity factor of the IASMHS reflects an individual's perceived ability to seek help for psychological problems and is therefore congruent with the PBC factor of the TPB. Current results provide additional empirical evidence that a critical psychological factor in the prediction of utilization of mental health services centers on an individual's perception of their own capacity to seek out mental health services and to undergo a treatment regime. Interventions seeking to improve the uptake of mental health services would therefore benefit from a targeted effort to increase individual's perceived ability to engage in psychological counselling.

An interesting finding that emerged from the current analysis was the positive, predictive effect that levels of neuroticism exerted on intentions. It should be noted that this effect was weak however it offers unique data that individual differences in personality may have an influence on an individual's likelihood of engaging in psychological counselling. The observation that increased levels of neuroticism were associated with a greater likelihood to engage in counselling may be suggestive that the presence of mental health difficulties, or emotional dysregulation, could be a factor in increasing the likelihood of utilizing mental health services. Future research should seek to determine whether personality traits and attitudes interact in the prediction of intentions, and whether or not current psychological health problems are associated with an increased likelihood of seeking out mental health services.

As with any research project there are a number of limitations associated with the current study. The sample represented a very specific stratum of the population therefore the generalizability of current findings are limited. Future research should preferably utilize more diverse populations groups to test the effectiveness of the IASMHS to predict utilization of mental health services. A further limitation of the current study is that we did not measure or control for any prior engagement in psychological counselling, nor current level of social support, both of which are important predictors in one's likelihood to utilise mental health

services. The limited size of the sample precluded to the ability to determine whether the observed factor structure of the IASMHA was accurate for males and females separately. The current analysis considered males and females as a homogenous group. Future assessments of the factor structure of the IASMHS should ideally assess the factorial invariance of the scale between the sexes.

In conclusion, the current study offers empirical support for the construct validity, internal reliability, and concurrent validity of the IASMHS. The IASMHS is suggested to be well represented by three factors including psychological openness, help-seeking propensity, and indifference to stigma. Psychological openness, and help-seeking propensity were both identified as being significantly, positively associated with intentions to engage in counselling, with the latter demonstrating the strongest predictive effect. Interventions to increase the uptake of mental health service should therefore focus on these psychological constructs. Furthermore, current results suggest that individual differences in personality traits may play a small but significant role in influencing engagement in psychological counselling services and future research is therefore encouraged to better determine the role of personality factors in the utilisations of mental health services.

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Table 1

CFA and Bifactor Model Fit Indices for the Alternative Models of the IASMHS

Model	χ^2	<i>df</i>	CFI	TLI	RMSEA(CI)	SRMR	AIC	BIC
<i>Models</i>								
1 Factor	760.06*	252	.68	.65	.08 (.07/.09)	.08	25079.08	25351.51
3 Factors	389.84*	249	.90	.88	.04 (.03/.05)	.06	24774.72	25058.51
Bifactor	360.62*	228	.90	.88	.04 (.03/.05)	.05	24766.97	25130.21

Note. $N = 325$; χ^2 = chi square goodness of fit statistic; df = degrees of freedom; RMSEA = Root-Mean-Square Error of Approximation; CI = 90% Confidence Interval; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized Square Root Mean Residual. * Indicates χ^2 are statistically significant ($p < .001$).

Table 2

Standardized and unstandardized factor loadings (and standard errors) for the three-factor model of IASMHS

Item	β	<i>B</i>	<i>SE</i>
Factor 1 (Psychological Openness)			
1. There are certain problems which should not be discussed outside of one's immediate family.	.38	1.00	---
4. Keeping one's mind on a job is a good solution for avoiding personal worries and concerns	.43	1.11	.26
7. It is probably best not to know everything about oneself	.41	1.09	.25
9. People should work out their own problems; getting professional help should be a last resort.	.67	1.62	.29
12. Psychological problems, like many things, tend to work out by themselves.	.60	1.42	.26
14. There are experiences in my life I would not discuss with anyone	.34	.88	.20
18. There is something admirable in the attitudes of people who are willing to cope with their conflicts and fears without resorting to professional help	.46	1.06	.24
21. People with strong characters can get over psychological problems by themselves and would have little need for professional help.	.52	1.20	.25

Factor 2 (Help-Seeking Propensity)			
2. I would have a very good idea of what to do and who to talk to if I decided to seek professional help for psychological problems.	.56	1.00	---
5. If good friends asked my advice about a psychological problem, I might recommend that they see a professional.	.50	.78	.10
8. If I were experiencing a serious psychological problem at this point in my life, I would be confident that I could find relief in psychotherapy.	.54	.88	.11
10. If I were to experience psychological problems, I could get professional help if I wanted to.	.62	.81	.10
13. It would be relatively easy for me to find the time to see a professional for psychological problems	.45	.79	.11
15. I would want to get professional help if I were worried or upset for a long period of time.	.56	.85	.11
19. If I believed I were having a mental breakdown, my first inclination would be to get professional attention	.56	.90	.11
22. I would willingly confide intimate matters to an appropriate person if I thought it might help me or a member of my family	.45	.63	.11
Factor 3 (Indifference to Stigma)			
3. I would not want my significant other (spouse, partner, etc.) to know if I were suffering from psychological problems.	.44	1.00	---
6. Having been mentally ill carries with it a burden of shame	.49	1.12	.20
11. Important people in my life would think less of me if they were to find out that I was experiencing psychological problems	.58	1.27	.17

A Test of the IASMHS

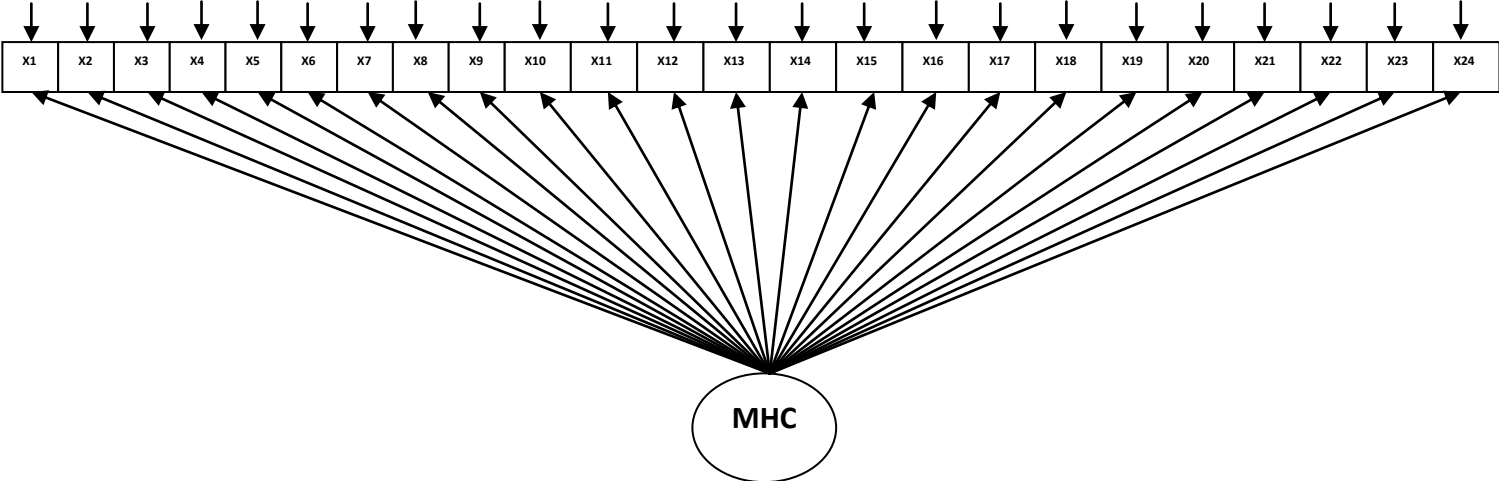
16. I would be uncomfortable seeking professional help for psychological problems because people in my social or business circles might find out about it.	.76	1.70	.24
17. Having been diagnosed with a mental disorder is a blot on a person's life	.47	1.02	.20
20. I would feel uneasy going to a professional because of what some people would think.	.80	1.69	.23
23. Had I received treatment for psychological problems, I would not feel that it ought to be "covered up."	.30	.58	.15
24. I would be embarrassed if my neighbour saw me going into the office of a professional who deals with psychological problems	.44	1.02	.19

Note. All factor loadings are statistically significant ($p < .0005$)

A Test of the IASMHS

Figure 1

One-Factor Model of the IASMHS

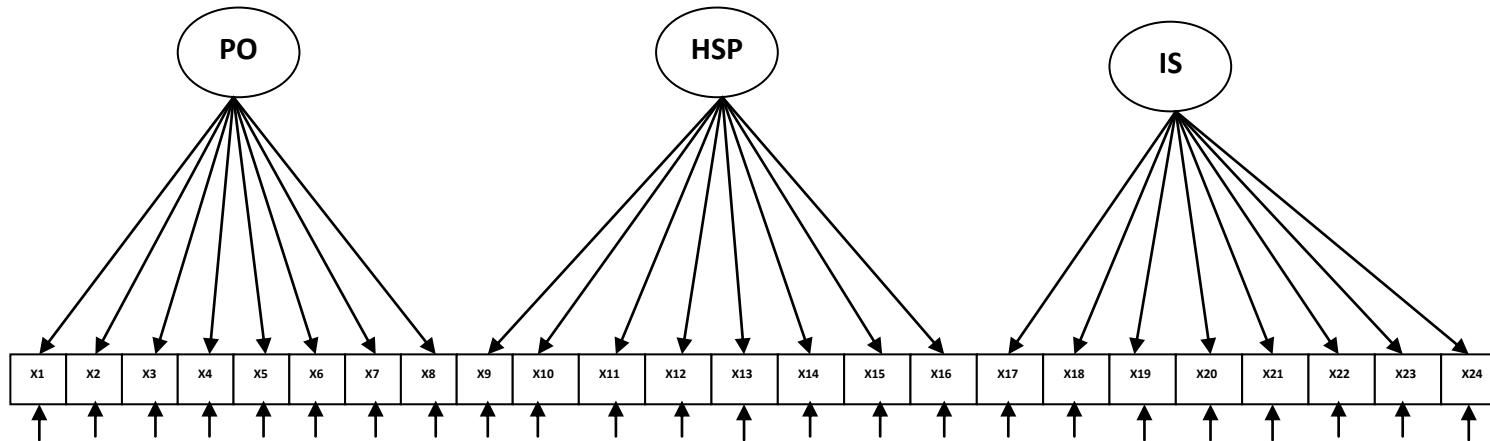


Note: MHC = Mental Health Cognitions

A Test of the IASMHS

Figure 2

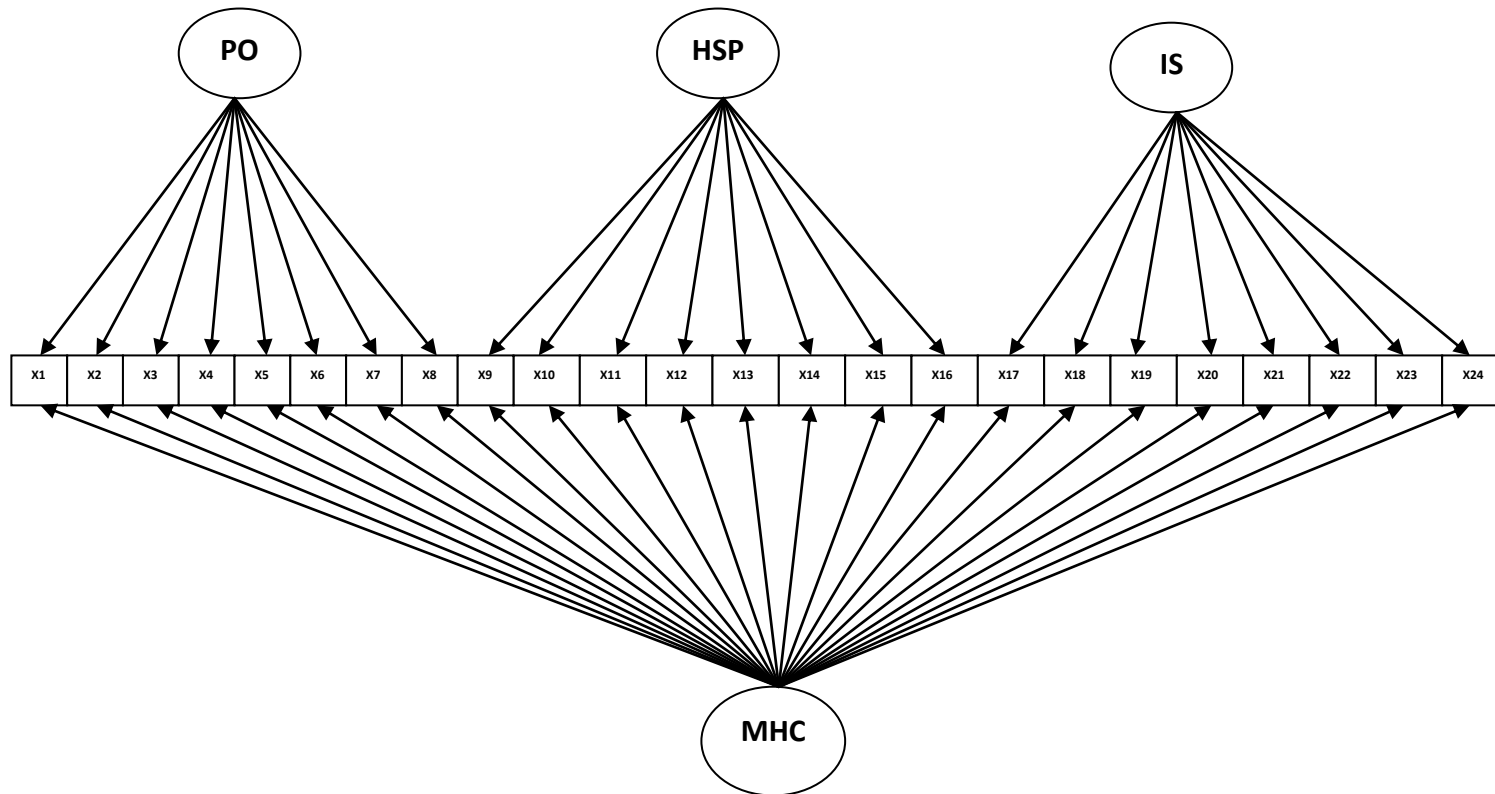
Three-Factor Model of the IASMHS



Note: PO = Psychological Openness; HSP = Help Seeking Propensity; IS = Indifference to Stigma

Figure 3

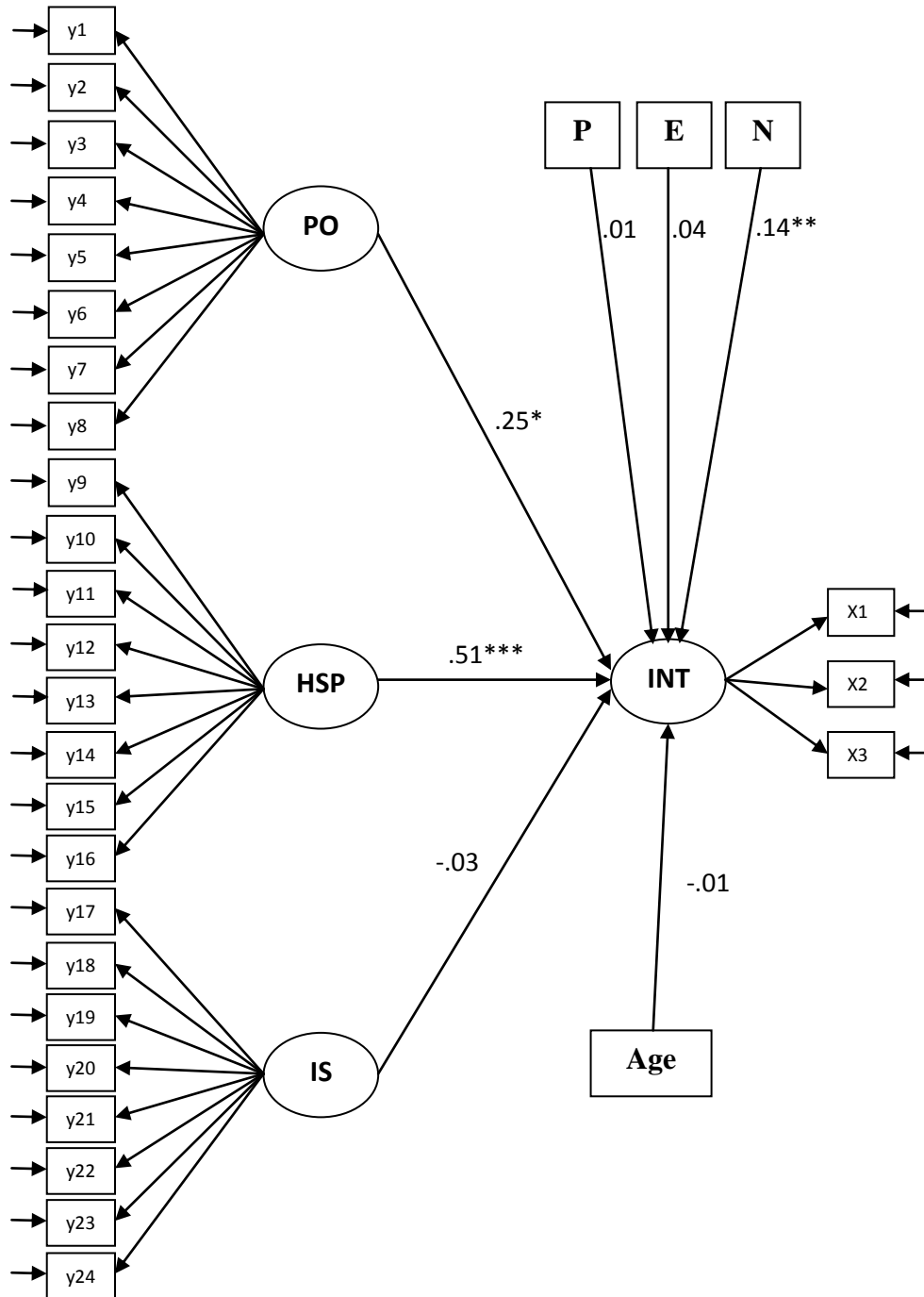
Bifactor Model of the IASMHS



Note: PO = Psychological Openness; HSP = Help Seeking Propensity; IS = Indifference to Stigma; MHC = Mental Health Cognitions

Figure 4

Structural Equation Model of Intentions to Participate in Psychological Counselling



Note: x1- x3 = items measuring Intentions (INT); y1- y8 = items included in Psychological Openness (PO) subscale; y9 – y16 items included in Help-Seeking Propensity (HSP) subscale; y17 – y24 items included in Indifference to Stigma (IS) subscale; P = Psychoticism; E = Extraversion; N = Neuroticism; * $p < .05$; ** $p < .01$; *** $p < .001$

Appendix A:

Six weeks ago while out walking Terry witnessed a severe road traffic accident. Terry, having basic first aid training, attempted to aid the victims of the accident. In the six weeks since witnessing the accident Terry has shown noticeable behavioural and personality changes. Terry has reported feeling no energy and extremely sad for most of each day. Terry has also been plagued by disturbing thoughts since witnessing the road traffic accident. Due to these disturbing thoughts Terry's sleep patterns have become erratic. Terry has become socially withdrawn, refusing to go out with friends and has lost interest in activities that were once a source of enjoyment. Two weeks ago Terry suddenly began to feel extremely anxious when out walking and in the last week Terry has refused to leave the house at all, even for work.

Terry's best friend Chris, worried about the noticeable changes in Terry's behaviour, sought the advice of the local G.P. The G.P. advised Chris that Terry should go along to see a professional psychologist to receive counseling for these problems as soon as possible. Chris made an appointment with a professional psychologist on Terry's behalf for next week and has urged Terry to keep the appointment and go along to see the psychologist.

Now please answer the following questions putting yourself in the position of Terry, so that to the best of your ability, you are answering these questions as if you were in Terry's situation: