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The role of Criterion A2 in the DSM-IV diagnosis of post-traumatic stress disorder

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Abstract

Background—Controversy exists about the utility of DSM-IV post-traumatic stress disorder (PTSD) Criterion A2: that exposure to a potentially traumatic experience (PTE; PTSD Criterion A1) is accompanied by intense fear, helplessness, or horror.

Methods—Lifetime DSM-IV PTSD was assessed with the Composite International Diagnostic Interview in community surveys of 52,826 respondents across 21 countries in the World Mental Health Surveys.

Results—37.6% of 28,490 representative PTEs reported by respondents met Criterion A2, a proportion higher than the proportions meeting other criteria (B-F; 5.4-9.6%). Conditional prevalence of meeting all other criteria for a diagnosis of PTSD given a PTE was significantly higher in the presence (9.7%) than absence (0.1%) of A2. However, as only 1.4% of respondents who met all other criteria failed A2, the estimated prevalence of PTSD increased only slightly (from 3.64% to 3.69%) when A2 was not required for diagnosis. PTSD with or without Criterion A2 did not differ in persistence or predicted consequences (subsequent suicidal ideation or secondary disorders) depending on presence-absence of A2. Furthermore, as A2 was by far the most commonly reported symptom of PTSD, initial assessment of A2 would be much less efficient than screening other criteria in quickly ruling out a large proportion of non-cases.

Conclusion—Removal of A2 from the DSM-IV criterion set would reduce the complexity of diagnosing PTSD while not substantially increasing the number of people who qualify for diagnosis. A2 should consequently be reconceptualized as a risk factor for PTSD rather than as a diagnostic requirement.

Keywords

post-traumatic stress disorder (PTSD); potentially traumatic experience (PTE); Criterion A2; diagnosis; DSM-IV; Composite International Diagnostic Interview (CIDI); World Health Organization World Mental Health (WMH) Surveys

INTRODUCTION

Controversy exists over what should qualify as a trauma for post-traumatic stress disorder (PTSD). Some experts favor a broader and others a narrower definition (1, 2). DSM-IV (3) tries to find a middle ground by including both an objective (Criterion A1) and a subjective (Criterion A2) component. Criterion A1 is broader than favored by some, as it includes any event a person “experienced, witnessed, or (was) confronted with” that involves “actual or threatened death or serious injury or a threat to the physical integrity of oneself or others.” The inclusion of indirect exposure and ambiguity of the term “threat to physical integrity” are particular points of controversy (4, 5). Criterion A2, new to DSM-IV, was designed to restrict qualifying events to those where the immediate response involved “intense fear, helplessness, or horror” to prevent the over-diagnosis that might otherwise occur because of the broad scope of A1.

The few studies that focus specifically on A2 show a substantial proportion of people exposed to an A1 experience – a potentially traumatic experience (PTE) -- meets A2 (4, 6). This means the A2 requirement reduces estimated prevalence only modestly (1, 7). However, failure to meet A2 strongly predicts failure to meet other criteria (6), making assessment of A2 useful in two ways. First, as A2 is the only PTSD criterion that can be assessed near the time of PTE exposure, early assessment of A2 can help predict subsequent PTSD, although recent prospective research shows that a meaningful proportion of patients who subsequently meet all other criteria for PTSD fail to meet A2 at the time of trauma exposure (8). Second, even when the assessment takes place months or years after PTE exposure, initial retrospective assessment of A2 can provide a quick rule-out (5). At the same time, the fact that PTSD diagnoses would increase only modestly if A2 was removed as a requirement argues against retaining A2 based on the interest in simplifying diagnoses by eliminating redundant criteria (9, 10).

The empirical foundation on which these competing views are based is limited to a small number of US and Australian studies. Only scant data exist, furthermore, on the relationship between A2 and other clinical correlates (4), making it unclear whether the A2 requirement excludes clinically significant cases. Given increasing adoption of DSM criteria worldwide, it is important to evaluate these issues using cross-national data (11). We do this here with data from the World Health Organization (WHO) World Mental Health (WMH) Survey Initiative (12).

METHODS AND MATERIALS

Samples

Data come from WMH surveys in 21 countries, five low or lower-middle income (Colombia, India, Nigeria, People's Republic of China [PRC; Beijing and Shanghai], and Ukraine), six upper-middle income (Brazil, Bulgaria, Lebanon, Mexico, Romania, South Africa), and ten high income (Belgium, France, Germany, Israel, Italy, Japan, Netherlands, New Zealand, Spain, and United States of America) countries. (Table 1) A total of 102,247 respondents were interviewed in these surveys. Part I of the interviews, which assessed core disorders, was completed by all respondents. Part II assessed additional disorders, including PTSD, and correlates, and was completed by 100% of respondents who met criteria for any Part I disorder and a probability subsample of other Part I respondents. Part II sample sizes range between 1,031 (Lebanon) and 7,312 (New Zealand) and total 52,826 respondents across countries. This is the sample used here. All surveys used multi-stage clustered area probability household samples representative of specific regions (Colombia, Japan, Mexico, Nigeria, PRC) or entire nations (the remaining countries). The weighted (by sample size) average response rate was 71.6%. The Part I sample was weighted to adjust for differential probabilities of selection and residual discrepancies between sample and Census on socio-demographic and geographic variables. The Part II sample was additionally weighted to adjust for under-sampling of Part I respondents without Part I disorders. WMH sampling and weighting are discussed in more detail elsewhere (13).

Procedures

Respondents were interviewed face-to-face by trained lay interviewers who obtained informed consent before initiating interviews. Recruitment-consent procedures were approved by Human Subjects committees in each country. Interviewer training and quality control procedures were cross-nationally standardized (14). The instrument was the WHO Composite International Diagnostic Interview (CIDI) (15), a fully-structured interview. Translation and back translation followed standard WHO procedures (16).

The assessment of DSM-IV PTSD

The CIDI PTSD section began with questions about lifetime occurrence of 27 PTEs. (Table 2) An additional open-ended questions then asked about "any other" traumatic event. Positive responses were recorded verbatim and reviewed by a clinical rater to confirm PTSD Criterion A1. A second open-ended question then attempted to obtain information about qualifying events that respondents did not report because of embarrassment. Wording was as follows:

> Sometimes people have experiences they don't want to talk about in interviews. I won't ask you to describe anything like this, but without telling me what it was, did you ever have a traumatic event that you didn't report to me because you didn't want to talk about it?

As we knew from previous research (6, 17) that some respondents report too many PTEs to assess PTSD for each one, we assessed one randomly selected PTE plus the respondent's self-nominated worst lifetime PTE. The random event is the focus of the current report, as appropriate weighting yields a representative sample of all PTEs. We sought such a sample because the conventional approach of focusing only on the worst PTE gives a biased perspective on event exposure and impact (18). However, we also report results for PTEs that received treatment to ensure that results apply to clinically relevant PTEs.

The random event was selected by numbering each PTE and either having the computer select one random number from those endorsed (in countries that used computer-assisted interviewing) or assigning a random start value uniquely to each respondent and selecting the first endorsed event after that value (in countries that used paper-and-pencil interviewing). The latter method does not guarantee equal probability of selection of PTEs, requiring an additional weight to adjust for differences in probability of selection as a function of placement in the list. Once the random event type was selected, a random occurrence of that event was selected when there were multiple occurrences. We then weighted the data by the number of unique occurrences of all qualifying PTEs to produce a weighted dataset in which each PTE is represented in the proportion it occurred in the population. As an indication of PTE distribution, the mean number of PTE occurrences among respondents with more than one was 5.8, with a range of 2-160 and inter-quartile range of 3-6.

Criterion A2 was considered met if the respondent endorsed any of three questions about whether, at the time of the random PTE, he-she felt (i) terrified or very frightened, (ii) helpless, or (iii) shocked or horrified. The remaining criteria were then assessed whether or not A2 was endorsed with questions about re-experiencing (Criterion B), avoidance-numbing (Criterion C), arousal (Criterion D), duration (Criterion E), and clinically significant distress-impairment (Criterion F). A retrospective question asked respondents how many months or years symptoms continued. All responses were converted into months (e.g., 5 years = 60 months) for analysis of persistence. Blinded clinical reappraisal interviews with the Structured Clinical Interview for DSM-IV (SCID) (19) carried out in the US WMH survey (20) found an area under the receiver operating characteristic curve (AUC) of .69 between PTSD diagnoses based on the CIDI and SCID.

The assessment of correlates of PTSD

Other lifetime DSM-IV/CIDI disorders considered were anxiety disorders (panic disorder, phobias, generalized anxiety disorder), mood disorders (major depressive disorder, dysthymic disorder, bipolar I-II disorder), and substance disorders (alcohol and drug abuse or dependence with abuse). Organic exclusion rules and diagnostic hierarchy rules were used in making these diagnoses (15). As described elsewhere (21), blinded SCID clinical

reappraisal interviews (19) in the US WMH sample documented generally good CIDI-SCID concordance (AUC) for diagnoses of anxiety (.73), mood (.93), substance (.86), and any (.76) disorder. Lifetime suicidal ideation was assessed with a single question that asked respondents if they ever seriously thought about killing themselves and, if so, their age when this first occurred.

Analysis methods

Cross-tabulations examined frequency of individual PTEs, conditional prevalence of DSM-IV PTSD with and without A2, and co-occurrence of criteria B-F. Logistic regression (22) examined socio-demographic predictors of PTSD with or without Criterion A2 and interactions of predictors with presence-absence of A2. Discrete-time survival analysis (23) with person-year the unit of analysis was used to examine association between PTSD with and without A2 and persistence as well as subsequent first onset of other DSM-IV/CIDI disorders and suicidal ideation. All parameters were estimated using the Taylor series method (24) in the SUDAAN software system (25). Significance was evaluated using .05-level two-sided Wald χ^2 tests.

RESULTS

Prevalence of DSM-IV PTSD criteria A1 and A2

Lifetime exposure to PTEs was reported by 67.9% of respondents (72.8% in high income, 61.7% upper-middle income, 63.1% low/lower-middle income countries). Disaggregated comparisons (detailed results available on request) found the higher exposure in high income countries due largely to automobile accidents. Weighted mean number of PTEs per respondent with any was 4.5 (4.7 in high income, 4.1 upper-middle income, 4.6 low/lower-middle income countries), for 305.6 lifetime PTEs for every 100 respondents (i.e., 67.9% × 4.5) and 137,778 PTEs in the full sample.

Other criteria for DSM-IV PTSD

Approximately one-third (37.6%) of weighted PTEs were reported as meeting A2. (Table 3) This proportion is substantially lower in high than upper-middle or low/lower-middle income countries. Conditional prevalence of meeting all other DSM-IV requirements for PTSD is dramatically higher in the presence (9.7%) than absence (0.1%) of A2. Conditional prevalence of PTSD given A2 is positively related to country income level. Conditional prevalence of all other requirements for PTSD in the absence of A2 is very low (0.0-0.1%) regardless of country income level.

It is unclear whether these results, which involve retrospective reporting of A2 in some cases many years after the PTE, accurately reflect the way the respondent would have characterized their short-term reactions at the time of the PTE. To the extent that they do, though, the results would mean that an assessment of A2 shortly after PTE occurrence might help predict subsequent PTSD. Indeed, if we compare the proportion of all random PTEs that meet full criteria for PTSD (by multiplying conditional prevalence of PTSD given A2 by the proportion of all PTEs with A2, both reported in Table 3) with the additional proportion that would meet criteria for PTSD if A2 was no longer required for diagnosis (by multiplying conditional prevalence of PTSD without A2 by the proportion of all PTEs without A2, both reported in Table 3), we find that the retrospective results suggest that only 1.4% of respondents who met all other requirements for PTSD would be missed if follow-up assessment was carried out only among people with A2. This estimated proportion is very similar in high income, upper-middle income, and low/lower-middle income countries (0.6-2.0%). More detailed examination (available on request) found no country or PTE for which the proportion of respondents meeting all other requirements who would be missed by

focusing on A2-positives is significantly more than 2%. That is, the upper end of the 95% confidence interval of these prevalence estimates never exceeded 2%. Furthermore, additional analyses (detailed results available on request) found that the percent is even smaller (1.1%) among PTEs for which professional treatment was sought, demonstrating that the low percentage holds for the most clinically relevant PTEs.

As noted in the introduction, one other rationale for including A2 in DSM-IV was that it provided a quick rule-out for non-cases. As it happens, though, our results suggest this is not true. Exclusion of PTEs that failed A2 would reduce by an estimated 62.4% (i.e., 100% - the 37.6% of PTEs that met Criterion A2) the number who would have to be further assessed and would miss only 1.4% who met all other criteria. Although this seems like a very effective screening rule, higher conditional prevalence of A2 than other DSM-IV criterion means the proportion of non-cases ruled out by A2 would be considerably lower than those ruled out by assessing any other DSM-IV criterion. For example, assessing Criterion F (clinically significant distress-impairment) would exclude 90.4% of non-cases compared to 62.4% by assessing A2.

The clinical significance of PTSD without A2

The above results show that removal of A2 from the criterion set would have very little effect on the number of people who qualify for a diagnosis of PTSD based on randomly selected PTEs in the WMH sample. PTSD prevalence based on randomly selected PTEs would increase only from 3.64% to 3.69% (about a 2% increase on the base of 3.64%) if we excluded A2, adding only 21 cases classifies as meeting full criteria for PTSD, out of the 28,490 cases in the weighted sample of randomly selected PTEs (0.07% of all such PTEs). In considering whether such a modest difference justifies inclusion of A2 in the DSM criterion set, it is relevant to know whether the few otherwise qualifying cases are so distinct in terms of low clinical significance that they need to be excluded. We addressed this question by examining whether PTSD differs in course depending on presence-absence of A2. No such difference was found. The odds-ratio (OR; 95% confidence interval in parentheses) of presence-absence of A2 predicting differential persistence of PTSD among cases with vs. without A2 was insignificant [1.02 (0.42-2.47), $\chi^2_1 = 0.0$, p = .97]. The OR of PTSD without A2 predicting subsequent first onset of other DSM-IV/CIDI disorders was actually higher, although not significantly so ($\chi^2_1 = 1.0$, p = .32), for PTSD without than with A2: 9.9 (2.1-47.1) versus 4.4 (3.2-6.1). The same basic pattern holds in predicting subsequent onset of suicidal ideation, with an OR (95% CI) of 3.6 (2.8-4.7) for PTSD with A2 and 4.4 (0.8-24.7) without A2 ($\chi^2_1 = 0.1$, p = .83).

Compositional differences between PTSD with and without A2

We investigated whether the composition of cases of PTSD differs depending on presence-absence of A2 using logistic regression where information about age at time of PTE exposure, sex, history of prior lifetime DSM-IV/CIDI disorders, and history of prior PTE exposure were used to distinguish PTSD with and without A2. (Table 4) Men had significantly higher odds than women of PTSD without than with A2 (5.1). Respondents with a history of other DSM-IV/CIDI disorders had significantly lower odds than others of PTSD without than with A2 (0.2).

DISCUSSION

This study found that PTEs are commonly occurring, that a much higher proportion of the randomly selected PTEs meet Criterion A2 than any other DSM-IV PTSD criterion, that conditional prevalence of meeting diagnostic threshold based on other criteria is significantly higher in the presence than absence of A2, and that only a small fraction of

respondents who meet diagnostic threshold based on other criteria fail to meet A2. The last of these results means the sample-specific prevalence of PTSD increased only very slightly when A2 was not required for diagnosis. Furthermore, cases meeting all other PTSD criteria do not differ in persistence, subsequent suicidal ideation, or secondary disorders from PTSD cases. We concluded from these results that A2 should be reconceptualized as a risk factor for PTSD rather than as a diagnostic requirement, as the retrospective data indirectly suggest that the occurrence of A2 symptoms shortly after the occurrence of the PTE is significantly predictive of subsequent PTSD even though the inclusion of A2 as a requirement for diagnosis has little effect on case definition once other diagnostic requirements are met.

Our finding that a substantial minority of PTEs was reported as causing intense fear, helplessness, or horror in countries throughout the world is consistent with previous studies in a narrower range of countries (4, 6, 7, 26). It is unclear, though, why conditional prevalence of A2 is significantly lower in high income (28.6%) than lower income (49.5-52.2%) countries. This could be due to PTEs in lower-income countries being, on average, more extreme (either in terms of characteristics of or objective consequences of the events) than in high-income countries. Another possibility is that people in low-income countries are more likely than those in high-income countries to be shocked or horrified by the occurrence of a traumatic stress. We are not aware of any cross-national research that addresses this second possibility, but it is indirectly inconsistent with research in the US that documented stronger effects of some traumatic events in leading to shock and horror among middle class than lower class people due to middle class people being more likely to have illusory worldviews about control and justice that are shattered by exposure to traumatic events (27, 28). Why we would find the opposite pattern in cross-national comparisons is perplexing. Another significant between-country difference is that conditional prevalence of PTSD given A2 is significantly higher in high-income (15.0%) than lower-income (3.8-6.3%) countries. These differences might reflect between-country differences in coping resources that influence emotional reactions to trauma.

Our finding that conditional prevalence of A2 given A1 far exceeded conditional prevalence of any other DSM-IV criterion of PTSD suggests that it would be more efficient to use a criterion other than A2 for screening to quickly rule out a diagnosis of PTSD. This is due to the high prevalence of A2 occurring not only among people with PTSD but also among people without PTSD.

Our finding that only a small proportion of PTEs without A2 were associated with all other DSM-IV requirements for PTSD is consistent with most (1, 4, 6, 7) but not all (8), previous studies. This means that removal of A2 from the criterion set would lead to only a modest increase in the number of people diagnosed with PTSD. Furthermore, the small number of cases of PTSD without A2 in the WMH series had equal PTSD persistence and equally elevated risk of temporally secondary mental disorders and suicidal ideation as cases with A2. This means that the small number of otherwise qualifying cases excluded by A2 should not be excluded. This conclusion is reinforced by evidence from other research that A2 is often absent in patients from high-risk occupations (e.g., military, police, fire fighters) who otherwise meet criteria for PTSD associated with traumatic events that occurred in the context of their occupation (29) as well as among those who were amnesic (8).

An especially intriguing finding was that conditional risk of PTSD without versus with A2 was significantly higher among respondents with than without a history of other DSM-IV/CIDI disorders. This might have been caused by prior psychopathology creating stronger vulnerability for PTSD associated with less severe than more severe PTEs, where the occurrence of A2 symptoms is a marker of PTE severity. This possibility is consistent with the general diathesis-stress model of anxiety disorders (30). This model suggests that

increased vulnerability to stress (as indicated here by history of psychopathology) reduces the amount of stress needed to promote onset of a stress-related anxiety disorder, whereas vulnerability factors become less important at high levels of stress exposure due to resistance resources becoming overwhelmed when stress is extreme.

As noted in the introduction, one original rationale for including A2 in DSM-IV was that expansion of Criterion A1 in DSM-IV might lead to an inappropriate broadening of the definition of PTSD unless a new subjective A2 requirement was used to delimit the range of qualifying traumas (2, 4, 5). As it turns out, the WMH results show that A2 did not have this desired effect. A somewhat different version of this argument is that the definition of a traumatic experience needs to include a short-term subjective component to focus clinical attention shortly after the time of trauma exposure on the subset of PTEs most likely to lead to the other PTSD criteria. This view might make good sense when it comes to predicting subsequent onset of PTSD from information about short-term emotional reactions to PTEs because conditional risk of PTSD is low in the absence of A2. Longitudinal studies have confirmed this predictive association (31, 32). Targeting preventive interventions consequently might make use of such information (33).

This possible value of the assessment of A2 near the time of trauma exposure as a predictor of future PTSD should not be confused with the role of A2 as a requirement for a diagnosis of PTSD. The distinction is familiar in other areas of medicine. For example, detection of hypertension is clinically useful as a predictor of heart attack and usually triggers initiation of preventive interventions. It makes no sense, though, to require a history of hypertension for a diagnosis of myocardial infarction when a person has a heart attack. Similarly with PTSD: When a patient presents for treatment of reactions to a PTE that include DSM-IV criteria B-F, it would seem perverse to use the patient's retrospective report of not experiencing A2 at the time of the PTE exposure to rule out a diagnosis of PTSD.

Another argument for retaining A2 is that information about A2 can be valuable in making a differential diagnosis between PTSD and other syndromes, such as comorbid reactive depression with phobia, when a patient presents with a mixture of depression and anxiety related to a PTE. The question of whether to make a diagnosis of PTSD if the patient's current symptoms meet PTSD criteria B-F even if the patient fails to recall A2 emotional reactions at the time of the trauma then has to be considered. The data presented here are unable to address this issue. Research to investigate this issue would be an important addition to other studies that have been called for to refine our understanding of differential treatment response in PTSD (34), especially if a differential treatment response could be found based on retrospective assessment of A2.

These findings should be interpreted in the context of several important limitations. First, WMH interviews were conducted by lay interviewers rather than clinicians. This is an especially important issue for the evaluation of retrospective reports of complex emotional responses like those involved in A2. Second, the clinical validation of PTSD was restricted to the US. Concordance of the CIDI diagnoses with clinical diagnoses may not be as good in some other countries. Third, PTSD was assessed in a lifetime framework, which introduces the possibility of recall bias. Fourth, results may not generalize to PTEs that were not considered in the CIDI assessment or that were so rarely reported that few such PTEs were represented in our randomly selected series.

The third limitation is especially important in light of the high proportion of respondents with other requirements for a diagnosis of PTSD who retrospectively reported that they met A2 at the time of PTE exposure (98.6%). This proportion exceeds the comparable proportion found in the one prospective general population study that examined this issue (89%) (26),

raising the possibility that A2 is recalled as being more prevalent than it actually was. If this is the case, then the small proportion of cases of PTSD estimated to be excluded from a diagnosis by the A2 requirement may be under-estimated. This possibility has to be considered in the context of the fact that some investigators have called for A2 to be broadened beyond the focus on fear, helplessness, and horror to include other strong emotions sometimes associated with PTSD, including anger, shame, grief, and extreme emotional blunting (i.e., shock, dissociation) (26, 35, 36). If A2 is broadened in these ways, then it is easy to imagine that virtually 100% of the people who meet other requirements for PTSD would also meet the broadened definition of A2. This would make A2 completely redundant with the other criteria, which would argue even more forcefully than the results reported here that A2 should be considered a risk factor rather than a diagnostic criterion for PTSD.

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Table 1

WMH Sample Characteristics by World Bank income categories

Country by income category[1]	Survey[2]	Sample Characteristics[3]	Field Dates	Age Range	Sample Size		Response Rate[4]
					Part I	Part II	
I. High income countries							
Belgium	ESEMeD	Stratified multistage clustered probability sample of individuals residing in households from the national register of Belgium residents. NR	2001-2	18+	2,419	1,043	50.6
France	ESEMeD	Stratified multistage clustered sample of working telephone numbers merged with a reverse directory (for listed numbers). Initial recruitment was by telephone, with supplemental in-person recruitment in households with listed numbers. NR	2001-2	18+	2,894	1,436	45.9
Germany	ESEMeD	Stratified multistage clustered probability sample of individuals from community resident registries. NR	2002-3	18+	3,555	1,323	57.8
Israel	NHS	Stratified multistage clustered area probability sample of individuals from a national resident register. NR	2002-4	21+	4,859	4,859	72.6
Italy	ESEMeD	Stratified multistage clustered probability sample of individuals from municipality resident registries. NR	2001-2	18+	4,712	1,779	71.3
Japan	WMHJ2002-2006	Un-clustered two-stage probability sample of individuals residing in households in eleven metropolitan areas	2002-6	20+	4,129	1,682	55.1
Netherlands	ESEMeD	Stratified multistage clustered probability sample of individuals residing in households that are listed in municipal postal registries. NR	2002-3	18+	2,372	1,094	56.4
New Zealand[5]	NZMHS	Stratified multistage clustered area probability sample of household residents. NR	2003-4	18+	12,790	7,312	73.3
Spain	ESEMeD	Stratified multistage clustered area probability sample of household residents. NR	2001-2	18+	5,473	2,121	78.6
United States	NCS-R	Stratified multistage clustered area probability sample of household residents. NR	2002-3	18+	9,282	5,692	70.9
Total					52,485	28,341	
II. Upper-middle income countries							
Brazil	São Paulo Megacity	Stratified multistage clustered area probability sample of household residents in the São Paulo metropolitan area.	2005-7	18+	5,037	2,942	81.3
Bulgaria	NSHS	Stratified multistage clustered area probability sample of household residents. NR	2003-7	18+	5,318	2,233	72.0
Lebanon	LEBANON	Stratified multistage clustered area probability sample of household residents. NR	2002-3	18+	2,857	1,031	70.0
Mexico	M-NCS	Stratified multistage clustered area probability sample of household residents in all urban areas of the country (approximately 75% of the total national population).	2001-2	18-65	5,782	2,362	76.6
Romania	RMHS	Stratified multistage clustered area probability sample of household residents. NR	2005-6	18+	2,357	2,357	70.9
South Africa	SASH	Stratified multistage clustered area probability sample of household residents. NR	2003-4	18+	4,315	4,315	87.1
Total					25,666	15,240	

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Country by income category[1]	Survey[2]	Sample Characteristics[3]	Field Dates	Age Range	Sample Size		Response Rate[4]
					Part I	Part II	
III. Low/lower-middle income countries							
Colombia	NSMH	Stratified multistage clustered area probability sample of household residents in all urban areas of the country (approximately 73% of the total national population)	2003	18-65	4,426	2,381	87.7
India	WMHI	Stratified multistage clustered area probability sample of household residents in Pondicherry region. NR	2003-5	18+	2,992	1,373	98.8
Nigeria	NSMHW	Stratified multistage clustered area probability sample of households in 21 of the 36 states in the country, representing 57% of the national population. The surveys were conducted in Yoruba, Igbo, Hausa and Efik languages.	2002-3	18+	6,752	2,143	79.3
PRC	B-WMH S-WMH	Stratified multistage clustered area probability sample of household residents in the Beijing and Shanghai metropolitan areas	2002-3	18+	5,201	1,628	74.7
Ukraine	CMDPSD	Stratified multistage clustered area probability sample of household residents. NR	2002	18+	4,725	1,720	78.3
Total					24,096	9,245	
IV. Total					102,247	52,826	

[1] The World Bank. (2008). Data and Statistics. Accessed May 12, 2009 at: http://go.worldbank.org/D7SN0B8YU0

[2] NSMH (The Colombian National Study of Mental Health); WMHI (World Mental Health India); NSMHW (The Nigerian Survey of Mental Health and Wellbeing); B-WMH (The Beijing World Mental Health Survey); S-WMH (The Shanghai World Mental Health Survey); CMDPSD (Comorbid Mental Disorders during Periods of Social Disruption); NSHS (Bulgaria National Survey of Health and Stress); LEBANON (Lebanese Evaluation of the Burden of Ailments and Needs of the Nation); M-NCS (The Mexico National Comorbidity Survey); RMHS (Romania Mental Health Survey); SASH (South Africa Health Survey); ESEMeD (The European Study Of The Epidemiology Of Mental Disorders); NHS (Israel National Health Survey); WMHJ2002-2006 (World Mental Health Japan Survey); NZMHS (New Zealand Mental Health Survey); NCS-R (The US National Comorbidity Survey Replication).

[3] Most WMH surveys are based on stratified multistage clustered area probability household samples in which samples of areas equivalent to counties or municipalities in the US were selected in the first stage followed by one or more subsequent stages of geographic sampling (e.g., towns within counties, blocks within towns, households within blocks) to arrive at a sample of households, in each of which a listing of household members was created and one or two people were selected from this listing to be interviewed. No substitution was allowed when the originally sampled household resident could not be interviewed. These household samples were selected from Census area data in all countries other than France (where telephone directories were used to select households) and the Netherlands (where postal registries were used to select households). Several WMH surveys (Belgium, Germany, Italy) used municipal resident registries to select respondents without listing households. The Japanese sample is the only totally un-clustered sample, with households randomly selected in each of the eleven sample areas and one random respondent selected in each sample household. 16 of the 22 surveys are based on nationally representative (NR) household samples, while two others are based on nationally representative household samples in urbanized areas (Colombia, Mexico).

[4] The response rate is calculated as the ratio of the number of households in which an interview was completed to the number of households originally sampled, excluding from the denominator households known not to be eligible either because of being vacant at the time of initial contact or because the residents were unable to speak the designated languages of the survey. The weighted average response rate is 71.6%.

[5] New Zealand interviewed respondents 16+ but for the purposes of cross-national comparisons we limit the sample to those 18+.

Table 2

The potentially traumatic experiences (PTEs) assessed in the WMH surveys

I. Experiences involving interpersonal violence

1. Combat experience (military or non-military) in a war or sectarian violence (e.g., political, religious, or ethnic conflicts)
2. Relief worker or peacemaker in war zone or region of sectarian violence
3. Civilian in a war zone
4. Civilian in a region of sectarian violence
5. Displaced refugee from a war zone or a region of sectarian violence
6. Kidnapped or held captive
7. Beaten up as a child by a caregiver
8. Beaten up by a spouse or romantic partner
9. Beaten up by someone else
10. Mugged or threatened with a weapon
11. Raped
12. Sexually assaulted or molested
13. Stalked

II. Other threats to the physical integrity of the respondent

14. Natural disaster (e.g., flood, hurricane, earthquake)
15. Life- threatening automobile accident
16. Other life-threatening accident
17. Toxic chemical exposure
18. Other exposure to a made disaster (e.g. fire, explosion at a place of work)
19. Other life-threatening illness or injury

III. Threats to the physical integrity of others

20. Death of a loved one
21. Life-threatening illness of a loved one
22. Any other trauma experienced by a loved one
23. Witnessed repeated physical fights at home as a child
24. Witnessed any other injury or death
25. Accidentally caused injury or death to someone
26. Purposefully injured, tortured, or killed someone
27. Witnessed atrocities or carnage

IV. Open-ended questions about other PTEs

28. Any other objectively qualifying experiences (Respondents are asked to describe these experiences.)
29. Private experiences (Respondents are explicitly told in advance that they will not be asked to describe these experiences.)

Table 3

Percentage of the representative sample of potentially traumatic experiences (PTEs) assessed in the WMH sample that had Criterion A2 and conditional prevalence of DSM-IV/CIDI PTSD in the presence versus absence of A2

	Percentage of PTEs that had Criterion A2			Conditional prevalence of PTSD in the presence of A2			Conditional prevalence of all other requirements for a diagnosis of PTSD in the absence of A2		
Country income levels	**%**	**(SD)**	**(n)[1]**	**%**	**(SD)**	**(n)[1]**	**%**	**(SD)**	**(n)[1]**
All	37.6	(0.9)	(28,490)	9.7	(0.7)	(11,121)	0.1	(0.0)	(17,369)
High	28.6	(1.1)	(17,815)	15.0	(1.2)	(6,341)	0.1	(0.0)	(11,474)
Upper-middle	52.2	(1.7)	(6,962)	6.3	(0.8)	(3,103)	0.1	(0.1)	(3,859)
Low/lower-middle	49.5	(2.7)	(3,713)	3.8	(1.0)	(1,677)	0.0	(0.0)	(2,036)

[1]The n's reported here are unweighted denominators of the number of PTEs on which the prevalence estimates are based. For example, a weighted 36.7% of the 28,490 PTEs reported (an observed 11,121 PTEs) were classified as meeting the DSM-IV/CIDI A2 criterion, while a weighted 9.7% of these 11,121 PTEs were classified as meeting all other DSM-IV/CIDI criteria for PTSD. The ratio of the number of respondents who reported at least one PTE to the total sample size (28,490/52,949 = 53.8%) is lower than the weighted 67.9% of respondents who reported a PTE because people with high rates of PTE exposure were somewhat under-represented in the samples.

Table 4

Logistic regression equations predicting whether the potentially traumatic experience (PTE) met Criterion A2 in the sample of PTEs assessed in the WMH sample that satisfy all other criteria for a DSM-IV/CIDI diagnosis of PTSD

					Country income level			
	All		High		Upper-middle		Low/Lower-middle	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Sex								
Male	5.1*	(1.6-16.5)	8.4*	(2.1-33.8)	0.8	(0.1-4.9)	12.1*	(1.1-129.4)
Female	1.0	--	1.0	--	1.0	--	1.0	--
χ^2_1		7.4*		9.0*		0.1		4.2*
Age at trauma exposure								
0-9	0.5	(0.1-3.3)	0.8	(0.1-6.9)	0.0	(0.0-0.3)	--[2]	--
10-19	0.7	(0.1-5.0)	0.9	(0.1-9.6)	0.4	(0.0-6.5)	--	--
20-29	0.5	(0.1-3.7)	0.6	(0.1-6.8)	0.1	(0.0-0.9)	--	--
30-39	1.7	(0.3-12.0)	1.2	(0.1-21.8)	1.0	(0.1-13.6)	--	--
40+	1.0	--	1.0	--	1.0	--	--	--
χ^2_4		1.9		0.4		8.9		--[2]
History of prior (to age of PTE exposure) DSM-IV/CIDI disorders								
Yes	0.2*	(0.1-1.0)	0.2	(0.0-1.5)	0.4	(0.0-3.4)	0.3	(0.1-1.1)
No	1.0	--	1.0	--	1.0	--	1.0	--
χ^2_1		4.0*		2.4		0.8		3.1
History of prior (to age of occurrence of the random PTE) PTE exposure								
Yes	0.8	(0.2-2.9)	1.0	(0.2-5.8)	0.5	(0.1-2.4)	1.1	(0.1-9.1)
No	1.0	--	1.0	--	1.0	--	1.0	--
χ^2_1		0.2		0.0		0.9		0.0
(n)		(1,340)[1]		(981)[1]		(267)[1]		(92)[1]

*Significant at the .05 level, two-sided test

[1]The n's reported here are the unweighted numbers of PTEs on which the regression equations are based. These include all PTEs in the representative sample of PTEs that were judged to meet all other DSM-IV/CIDI criteria for a diagnosis of PTSD in the presence or absence of A2. The outcome is whether or not the PTE met all other PTSD criteria but not A2.

[2]The number of observed cases of PTSD without A2 in this sub-sample was too small to estimate the association with this polychotomous variable.