

表2. 保健所型別にみた面接相談がきっかけとなり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入

型別	面接相談	面接相談の内 訪問件数	危機介入	
			緊急対応	継続対応
都道府県型	41.0	9.8 24.0% (9.8/41.0)	2.3 5.5% (2.3/41.0)	5.5 5.3% (5.5/41.0)
指定都市型	175.4	49.7 28.3% (49.7/175.4)	7.5 4.3% (7.5/175.4)	19.6 11.2% (19.6/175.4)
政令市・中核市型	169.1	30.4 18.0% (30.4/169.1)	5.2 3.1% (5.2/169.1)	10.2 6.0% (10.2/169.1)
特別区	296.3	93.6 31.6% (93.6/296.3)	9.8 3.3% (9.8/296.3)	12.6 4.3% (12.6/296.3)

注) 有効回答保健所数：都道府県型289箇所、指定都市型10箇所、政令市・中核市型27箇所、特別区10箇所、期間：2004年4月から9月  
上段：一保健所あたりの人数、下段：各分野の全体に対する割合

### 電話相談から保健所が関わった精神保健活動

電話相談がきっかけになり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入の結果を表3に分類別に示した。有効回答のあった331保健所について電話相談がきっかけとなり関わった対象者は34173人であり、一保健所あたり103.2人であった。分類別にみると、最も多かったのは“社会復帰”で、一保健所あたり22.4人であった。また、“その他”が52.8人と全体の約半数を占めていた。これらの対象者への対応状況は、訪問が一保健所あたり19.2人、緊急対応が4.0人、継続対応が5.1人に実施されていた。また、訪問や緊急対応、継続対応の危機介入が行われた割合を算出すると、訪問は18.6%、緊急対応は3.8%、継続対応は4.9%であった。分類別に比較すると、訪問の割合は“老人精神保健”の25.6%が最も高く、“社会復帰”が22.8%と続き、最も低いのは“思春期”9.7%であり、分類間で有意性が認められた ( $p < 0.0001$ )。緊急対応の割合は“アルコール”が6.0%と高く、“思春期”が0.8%と低く、継続対応の割合も同様に“アルコール”が6.2%と高く、“思春期”が4.0%と低かった。これらも各分類間で有意性が認められた ( $p < 0.0001$ )。また、危機介入以外の対応の割合でも分類間で有意性がみられた ( $p < 0.0001$ )。

電話相談がきっかけで関わった精神保健活動対象者の人数、訪問数、危機介入数を保健所型にみた結果を表4に示した。これら実人数を保健所型別にみると、特別区が588.1人と最も多かった。なお、人口10万対電話相談実人数を保健所型に比較すると、それぞれの中央値は都道府県型が41.3、指定都市型が48.9、政令市・中核市型53.5、特別区97.1であり、型間で有意性が認められた ( $p = 0.0012$ )。訪問の割合は、特別区の23.0%が最も高く、次いで指定都市型18.7%であった。ただし、危機介入の割合は、指定都市型が13.9%と最も高く、特別区が6.6%と最も低かった。なお、人口10万人に対する対応実人数を保健所型で比較すると、訪問 ( $p = 0.0461$ 、中央値：都道府県型7.4、指定都市型16.8、政令市・中核市型9.7、特別区33.3) で有意性が認められた。

保健所の精神保健活動における危機介入についての実態調査

表3. 電話相談がきっかけになり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入

分類	面接相談	電話相談の内 訪問件数	危機介入		危機介入以外の 対応
			緊急対応	継続対応	
老人精神保健	2084 (一保健所あたり 6.3)	534	80	127	1832
		(1.6)	(0.2)	(0.4)	(5.5)
		25.6% (534/2084)	3.8% (80/2084)	6.1% (127/2084)	87.9% (1832/2084)
社会復帰	7408 (22.4)	1686	188	329	6770
		(5.1)	(0.6)	(1.0)	(20.5)
		22.8% (1686/7408)	2.5% (188/7408)	4.4% (329/7408)	91.4% (6770/7408)
アルコール	2295 (6.9)	409	138	143	1998
		(1.2)	(0.4)	(0.4)	(6.0)
		17.8% (409/2295)	6.0% (138/2295)	6.2% (143/2295)	87.1% (1998/2295)
薬物	353 (1.1)	56	17	18	315
		(0.2)	(0.05)	(0.05)	(1.0)
		15.9% (56/353)	4.8% (17/353)	5.1% (18/353)	94.8% (315/353)
思春期	988 (3.0)	96	8	39	937
		(0.3)	(0.02)	(0.1)	(2.8)
		9.7% (96/988)	0.8% (8/988)	4.0% (39/988)	94.8% (937/988)
こころの健康	3579 (10.8)	632	133	217	3211
		(1.9)	(0.4)	(0.7)	(9.7)
		17.7% (632/3579)	3.7% (133/3579)	6.1% (217/3579)	89.7% (3211/3579)
その他	17466 (52.8)	2941	743	816	15890
		(8.9)	(2.2)	(2.5)	(48.0)
		16.8% (2941/17466)	4.3% (743/17466)	4.7% (816/17466)	91.0% (15890/17466)
合計	34173 (103.2)	6354	1307	1689	30953
		(19.2)	(4.0)	(5.1)	(93.5)
		18.6% (6354/34173)	3.8% (1307/34173)	4.9% (1689/34173)	90.6% (30953/34173)

注) 有効回答保健所数：331箇所、期間：2004年4月から9月  
 上段：実人数、中段：一保健所あたりの人数、下段：各分野の全体に対する割合  
 対応を行わなかった例があるため、緊急対応、継続対応、危機介入以外の対応の総計は100%にならない

表4. 保健所型別にみた電話相談がきっかけとなり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入

型別	電話相談	電話相談の内 訪問件数	危機介入	
			緊急対応	継続対応
都道府県型	65.8	12.2 18.5% (12.2/65.8)	3.0 4.5% (3.0/65.8)	3.4 5.1% (3.4/65.8)
指定都市型	170.8	31.9 18.7% (31.9/170.8)	9.3 5.5% (9.3/170.8)	14.4 8.5% (14.4/170.8)
政令市・中核市型	304.8	47.1 15.5% (47.1/304.8)	8.7 2.8% (8.7/304.8)	13.4 4.4% (13.4/304.8)
特別区	588.1	135.4 23.0% (135.4/588.1)	14.5 2.5% (14.5/588.1)	24.2 4.2% (24.2/588.1)

注) 有効回答保健所数：都道府県型284箇所、指定都市型9箇所、政令市・中核市型26箇所、特別区10箇所、期間：2004年4月から9月  
 上段：一保健所あたりの人数、下段：各分野の全体に対する割合

#### 申請・相談から保健所が関わった精神保健活動

申請・通報がきっかけになり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入の結果を表5に示した。有効回答の保健所320箇所が、申請・通報がきっかけとなり関わった対象者は2697人で、一保健所あたり8.4人であった。分類別にみると、最も多かったのは“社会復帰”であり、一保健所あたり1.5人であった。また、“その他”が4.6人と全体の半数以上を占めていた。これら対象者への対応状況は、訪問が一保健所あたり4.3人、緊急対応が5.0人、継続対応が1.3人であり、継続対応より緊急対応の方が多かった。これを訪問や危機介入が行われた割合で見ると、訪問は50.9%、緊急対応は59.2%、継続対応は15.8%となった。分類間で比較すると、訪問の割合は“思春期”の69.0%が最も高く、“老人精神保健”が62.2%とこれに続き、“こころの健康”が40.8%と一番低かった ( $p < 0.0004$ )。緊急対応の割合は、“老人精神保健”の63.3%が最も高く、次いで“社会復帰”の63.2%であり、“薬物”46.7%、“思春期”17.2%を除いては約半数以上に緊急対応が実施されていた ( $p < 0.0001$ )。継続対応は“アルコール”が23.8%と高く、低いのは“社会復帰”で13.6%であった ( $p = 0.0132$ )。分類間で危機介入以外の対応 ( $p = 0.0491$ ) も分類間で有意性が認められた。

申請・通報がきっかけとなり関わった精神保健活動対象者を保健所型にみたものを表6に示した。対象者の一保健所あたりの実人数を型別にみると、指定都市型の14.2人が最も多く、次いで政令市・中核市型の14.0人であった。なお、人口10万人に対する申請・通報の実人数を保健所型別に比較すると、それぞれの中央値が、都道府県型4.1、指定都市型3.1、政令市・中核市型2.7、特別区2.8であり、型間に有意性はみられなかった。訪問の割合は、指定都市型の64.7%が最も高く、特別区の36.4%が最も低かった。また、危機介入（緊急対応+継続対応）の割合も、指定都市型の92.9%が最も高く、特別区の40.9%が最も低かった。なお、人口の10万人に対する対応実人数を保健所型別に比較すると、緊急対応のみで有意性が認められた ( $p = 0.0047$ 、中央値：都道府県型2.4、指定都市型3.0、政令市・中核市型1.6、特別区0.8)。

保健所の精神保健活動における危機介入についての実態調査

表5. 申請・通報がきっかけになり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入

分類	申請・通報	申請・通報の内 訪問件数	危機介入		危機介入以外の 対応
			緊急対応	継続対応	
老人精神保健	90 (一保健所あたり 03)	56	57	16	17
		(0.2)	(0.2)	(0.6)	(0.5)
		62.2% (56/90)	63.3% (57/90)	17.8% (16/90)	18.9% (17/90)
社会復帰	464 (1.5)	247	293	63	108
		(0.8)	(0.9)	(0.2)	(0.3)
		53.2% (247/464)	63.2% (293/464)	13.6% (63/464)	23.3% (108/464)
アルコール	193 (0.6)	100	97	46	50
		(0.3)	(0.3)	(0.14)	(0.16)
		51.8% (100/193)	50.3% (97/193)	23.8% (46/193)	25.9% (50/193)
薬物	122 (0.4)	57	57	21	44
		(0.2)	(0.2)	(0.07)	(0.14)
		46.7% (57/122)	46.7% (57/122)	17.2% (21/122)	36.1% (44/122)
思春期	29 (0.1)	20	5	5	4
		(0.06)	(0.02)	(0.02)	(0.01)
		69.0% (20/29)	17.2% (5/29)	17.2% (5/29)	13.8% (4/29)
こころの健康	338 (1.1)	138	188	64	86
		(0.4)	(0.6)	(0.2)	(0.3)
		40.8% (138/338)	55.6% (188/338)	18.9% (64/338)	25.4% (86/338)
その他	1461 (4.6)	755	885	211	377
		(2.4)	(2.8)	(0.7)	(1.2)
		51.7% (755/1461)	60.6% (885/1461)	14.4% (211/1461)	25.8% (377/1461)
合計	2697 (8.4)	1373	1597	426	686
		(4.3)	(5.0)	(1.3)	(1.2)
		50.9% (1373/2697)	59.2% (1597/2697)	15.8% (426/2697)	25.4% (686/2697)

注) 有効回答保健所数：320箇所、期間：2004年4月から9月  
 上段：実人数、中段：一保健所あたりの人数、下段：各分野の全体に対する割合  
 対応を行わなかった例があるため、緊急対応、継続対応、危機介入以外の対応の総計は100%にならない

表6. 保健所型別にみた申請・通報がきっかけとなり保健所が関わった精神保健活動対象者の対応実人数及び訪問、危機介入

型別	申請・通報	申請・通報の内 訪問件数	危機介入	
			緊急対応	継続対応
都道府県型	7.6	3.9 50.8% (3.9/7.6)	4.5 59.7% (4.5/7.6)	1.2 15.4% (1.2/7.6)
指定都市型	14.2	9.2 64.7% (9.2/14.2)	11.8 82.9% (11.8/14.2)	1.4 10.0% (1.4/14.2)
政令市・中核市型	14.0	6.8 48.5% (6.8/14.0)	7.2 51.5% (7.2/14.0)	3.3 23.2% (3.3/14.0)
特別区	12.6	4.6 36.4% (4.6/12.6)	4.0 31.8% (4.0/12.6)	1.1 9.1% (1.1/12.6)

注) 有効回答保健所数：都道府県型277箇所、指定都市型12箇所、政令市・中核市型24箇所、特別区7箇所、期間：2004年4月から9月  
上段：一保健所あたりの人数、下段：各分野の全体に対する割合

### 危機介入に関する業務要領

危機介入に関する業務要領の整備状況に関して表7に示した。全体で11.1%の保健所が業務要領を整備していた。型別にみると、都道府県型12.1%、指定都市型18.2%だが、政令市・中核市型は一箇所のみ整備（3.6%）、特別区は整備されていなかった。

業務要領等のガイドラインの必要性について表8に示した。業務要領が整備されていない保健所311のうち299箇所から有効回答を得た。業務要領等のガイドラインが必要であると回答した保健所は全体で83.6%であった。一方、必要でないと回答した保健所が4.3%あり、不明は12.3%であった。

表7. 危機介入に関する業務要領の整備状況

	都道府県(297)	指定都市型(11)	政令市・中核市型(28)	特別区(14)	全体(350)
整備あり	36 12.1% (36/297)	2 18.2% (2/11)	1 3.6% (1/28)	0 0.0%	39 11.1% (39/350)

注) 期間：2004年4月から9月、( )内：有効回答保健所数  
上段：実人数、下段：各型の全体に対する割合

表8. 業務要領等のガイドラインの必要性

	都道府県型	指定都市型	政令市・中核市型	特別区	全体
必要である	210 84.3% (210/249)	7 70.0% (7/10)	24 88.9% (24/27)	9 69.2% (9/13)	250 83.6% (250/299)
必要でない	11 4.4% (11/249)	1 10.0% (1/10)	3 11.1% (3/27)	1 7.7% (1/13)	13 4.3% (13/299)
不明	28 11.3% (28/249)	2 20.0% (2/10)	3 11.1% (3/27)	3 23.0% (3/13)	36 12.3% (36/299)

注) 有効回答保健所数：都道府県型249箇所、指定都市型10箇所、政令市・中核市型27箇所、特別区13箇所、期間：2004年4月から9月  
上段：実人数、下段：各型の全体に対する割合

#### IV. 考察

地域精神保健における危機介入とは、緊急対応（入院支援）と継続対応（在宅支援）を含むが、保健所が適切な危機介入を行うことで精神障害者が危機的状況から脱し、かつ社会的要請に応えることともなる。現在、その体制の一層の整備が急務であり、現状を把握したうえで、効果的かつ効率的な体制構築が求められる。そこで、今回は充分な一定期間（6ヶ月）を対象に設定し、保健所の危機介入に関わる業務について、きっかけ別に量的な面を調査した。また、各保健所がどの程度危機介入を必要とする可能性があるかを把握することで、保健所が人的資源や予算等をどのように配分すればよいかの資料となり得る。精神保健福祉関連で緊急事態への対処と通ずる、例えば、休日・夜間の対応（張、他、2007）、精神保健福祉法に基づく措置入院、医療保護入院のための移送制度（高岡、2004）等に保健所型間に様々な相違があるため、危機介入においても保健所型間で事例数等に差がないかを検討した。さらに、調査時点では危機介入のマニュアル化が進んでいなかったため、その状況と必要性を調査した。

本研究は全国の保健所に管内の精神保健医療資源及び社会復帰施設等の調査を依頼したものであり、精神保健福祉業務の責任者、または業務を熟知している者に回答を依頼し、複雑かつ分量の多い調査にもかかわらず、56.9%と過半数の回答を得たため一定の価値があると考えた。

面接相談がきっかけで保健所が関わった精神保健活動対象者は一保健所あたり平均62.9人であった。電話相談がきっかけである者は103.2人で、申請・通報がきっかけである者は8.4人であった。手軽な電話が一番多いが、面接も一保健所あたり一月にすると10人を超えており、面接は重要な役割を担っていた。訪問または危機介入に至った割合を面接相談、電話相談、申請・通報のきっかけ間で比較すると、申請・通報の訪問、危機介入、特に緊急対応の割合が面接相談、電話相談の事例と比較して著しく高い。緊急対応は自傷他害の恐れのある人に行われ、短期間対応が必須であり、一方、継続支援においては本人の状況を多角的に調査し計画を立て支援する。必要な人的資源を適切に配置することにおいて、緊急対応について特に短期間で緊急に判断できる専門職の配置が必要である。

訪問について分類別にみると、“社会復帰”がどのきっかけについても高い値を示しており、現在、医療費の抑制を図るため精神障害者の退院促進が課題となっているが、この結果は早期退院に問題のあるケースがあることを示唆している。精神保健福祉士は社会復帰に関する相談に応じ、助言、指導、日常生活に必要な訓練等を行うと規定されており（知名、2008）、その活用が社会復帰に有用であるかもしれない。また、危機介入において、きっかけ全てで“アルコール”が高い値を示した。近年、アルコール消費量が生活様式の変化等により急激な増加を示し、それに伴いアルコール精神病及びアルコール依存症の患者が増加（岡本、他、2008）しており、社会問題として保健所はアルコール対策を重視する必要がある。面接相談、電話相談がきっかけの分類別割合は“思春期”で低い値を示したのに対して、申請・通報がきっかけは“思春期”で高い割合を示した。この結果は、思春期については家庭内よりも地域において

問題が起きていることを示唆している。精神保健福祉に関して思春期のニーズは大きく、教育センターや児童相談所等、地域の機関が独立して子どもの心の問題に対応しているが、これらを統合する機関がないという問題点を知名は指摘している（知名，2008）。必要に応じ、保健所が中心となり統合の役割を果たすべきであろう。

また、面接相談、電話相談、申請・通報、いずれのきっかけにおいても“その他”の割合が多いのは、疾患と生活障害が併せてみられるという精神障害の特徴ゆえ、保健所に寄せられる相談が医療や福祉、生活まで多岐に渡るため分類が難しく、危機介入の多様性と複雑性を裏付けるものと考えられる。この多様性と複雑性がこれまでマニュアル化が進んでいなかった一因ともいえる。

面接相談及び電話相談がきっかけに関わった精神保健活動対象者を保健所型別でみると、特別区が最大で296.3人及び588.1人であった。同様に、申請・通報がきっかけという対象者の最多は指定都市型で14.2人であった。保健所管内の対象人数の違いもあるが、地方より都市部での相談が多いことが示唆される。次に訪問や危機介入に至った事例について、訪問の場合は面接相談及び電話相談がきっかけに関わった精神保健活動対象者を保健所型別でみると、特別区で31.6%及び23.0%と最も高く、人口10万対対応実人数においても、特別区が顕著に高い値を示した。危機介入は指定都市型で15.5%及び13.9%と最も高く、特別区で7.6%及び6.6%と最も低かった。相談及び訪問活動は、東京、神奈川、大阪等、都市部に多く、青森、岐阜、徳島等、地方に少ない（守田、他，2001）と2000年の地域保健事業報告をまとめた調査結果があり、今回の面接相談及び電話相談の訪問の結果と一致した。また、特別区では相談を受け訪問するが、危機介入にまで至らなかった事例が多い可能性が示唆された。事例それぞれ重症度の違い等があるため一概には言えないが、訪問が特別区では機能している可能性がある。

申請・通報について、数については型間で有意性はなかった。申請・通報がきっかけで訪問に至った割合は、指定都市型64.7%が最も高く、特別区が36.4%と最も低かった。人口10万対対応実人数においても、指定都市が高く、特別区が低い値を示した。危機介入に至った割合は、面接相談と電話相談と同じく指定都市型で92.9%と最も高く、特別区で40.9%と最も低かった。保健所間でなんらかシステム上の違いがあるのかもしれない。少なくとも申請・通報は訪問及び危機介入に繋がる可能性が高く、特に指定都市型では型の中で最もこの割合が高いため注意深く取り組まなければならない。また、特別区で訪問の割合が低い理由は、訪問まで至らない事例の申請・通報が多く含まれるためではないかと考える。

危機介入以外の対応は、面接相談で89.0%、電話相談で90.6%と約9割を占めており、危機介入を行わなくてよい事例のものも多くあるため、効率的に判断しなければならない。

危機介入に関する業務要領は11.1%の保健所でしか整備がされていないが、業務要領等のガイドラインが必要であると回答した保健所は83.6%であった。保健所による緊急事態への対処については、その専門性を活かし緊急を要する事態への対応が求められる。緊急を要する時点の対応、また事後の対応を考えるにあたって、地域精神保健福祉の業務、対応に対するマニユ

アルを作る必要がある。保健師における訪問指導においてもマニュアル化を図ることが地域精神保健福祉活動のサポート体制を充実させる（上田、他、2008）としている。現在では2008年に「保健所精神保健福祉業務における危機介入手引」の策定がなされており（高岡、2008）、今後この手引を活かし効率的に地域精神保健福祉業務における危機介入を行うことが期待される。

社会の精神障害に対する知識、理解の乏しさや精神障害への根強い偏見は未だ指摘されているところであり、精神保健福祉法の改正等の影響で、保健所の役割が変わりつつある（高岡、他、2003、角田、他、2004）現在、精神保健福祉はどのようにあるべきか保健所自身の役割を含めて常に検討しなければならない。地域精神保健福祉において、保健所の果たすべき重要な役割のひとつに精神保健福祉業務における緊急を要する事態への対処があり、危機介入も含まれる。今後は危機介入マニュアルを活かして体制を構築し、効率的かつ効果的な危機介入を行わなければならない。

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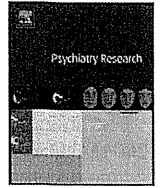
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## Lifetime prevalence, psychiatric comorbidity and demographic correlates of “hikikomori” in a community population in Japan

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### ARTICLE INFO

#### Article history:

Received 29 January 2008

Received in revised form 13 August 2008

Accepted 23 October 2008

#### Keywords:

Epidemiology

Japan

Psychopathology

Social withdrawal

### ABSTRACT

The epidemiology of “hikikomori” (acute social withdrawal) in a community population is not clear, although it has been noted for the past decade in Japan. The objective of this study is to clarify the prevalence of “hikikomori” and to examine the relation between “hikikomori” and psychiatric disorders. A face-to-face household survey was conducted of community residents ( $n=4134$ ). We defined “hikikomori” as a psychopathological phenomenon in which people become completely withdrawn from society for 6 months or longer. We asked all respondents whether they had any children currently experiencing “hikikomori”. For respondents aged 20–49 years old ( $n=1660$ ), we asked whether they had ever experienced “hikikomori”. A total of 1.2% had experienced “hikikomori” in their lifetime. Among them, 54.5% had also experienced a psychiatric (mood, anxiety, impulse control, or substance-related) disorder in their lifetime. Respondents who experienced “hikikomori” had a 6.1 times higher risk of mood disorder. Among respondents, 0.5% currently had at least one child who had experienced “hikikomori”. The study suggests that “hikikomori” is common in the community population in Japan. While psychiatric disorders were often comorbid with “hikikomori”, half of the cases seem to be “primary hikikomori” without a comorbid psychiatric disorder.

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### 1. Introduction

The term “hikikomori” (acute social withdrawal) describes a Japanese psychopathological and sociological phenomenon in which people, and especially younger generations, become completely withdrawn from society for 6 months or longer (Saito, 1998; Watts, 2002; Kaneko, 2006). The word “hikikomori” has spread in the late 1990s (Saito, 1998) and it has increasingly attracted social attention and concern in Japan. A Japanese research report in 2001 showed that more than 6000 “hikikomori” patients visited public health centers in 1 year (Watts, 2002). A Japanese government

funded research group established guidelines for “hikikomori” (Ito, 2003). Recently, several studies of “hikikomori” having been carried, ranging from a case report to an article addressing how to support individuals with “hikikomori” (Narabayashi, 2003; Sakai et al., 2004; Hattori, 2006).

The “Hikikomori” had once been thought to be a Japanese culture-specific phenomenon. However, cases of “hikikomori” have recently been reported in Oman and Spain, suggesting that the phenomenon is not necessarily specific to the Japanese culture but may reflect the results of the interactions between individuals and culture (Sakamoto et al., 2005; Garcia-Campayo et al., 2007).

Several studies in Japan have reported the characteristics of “hikikomori” patients who consulted a public or private mental health center (Suwa and Suzuki, 2002; Kobayashi et al., 2003; Takahata, 2003), although these studies looked at only cases in which the individual sought help and did not estimate the prevalence of “hikikomori” in the population. A population-based study by Kim et al. (2002) found that 1.27% of young adults in a rural municipality currently had “hikikomori” and that 2.50% had

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experienced “hikikomori”. However, the findings of the study of Kim et al. were obtained from a limited area of Japan. The prevalence of “hikikomori” in a representative sample of the community in Japan is still unclear.

According to previous studies (Suwa and Suzuki, 2002; Takahata, 2003), “hikikomori” is more frequently seen in males and mostly occurs during puberty and adolescence. It is also reported that not a few people with “hikikomori” have experienced school refusal. The mean duration of “hikikomori” before consultation with a mental health center was about 5 years, although the duration ranged from less than 1 to more than 10 years.

Some investigators have argued that “hikikomori” is not part of a psychiatric disorder, but a social and psychological phenomenon, resulting from a complex interaction between the challenges of adolescence and rapid social and family changes in Japan (Saito, 1998), calling such cases “primary hikikomori” (Kinugasa, 1998). On the other hand, Suwa and Suzuki (2002) reported that 12 of 14 cases of “hikikomori” who consulted public health centers had a psychiatric disorder, such as social phobia, obsessive-compulsive disorder, delusional disorder, pervasive developmental disorder, somatization disorder, depressive disorder, attention-deficit/hyperactivity disorder, and borderline intellectual functioning. However, cases of “hikikomori” comorbid with other psychiatric disorders may be more likely to visit a public health center, which may result in an overestimation of their psychiatric comorbidity. In addition, the investigators did not report which occurred first, “hikikomori” or a psychiatric disorder, or they did not use a standardized interview schedule for psychiatric diagnosis. It is important to know the contribution of psychiatric disorders to the development and course of “hikikomori”, because such knowledge would provide clues to possible medical approaches to this psychopathology.

The World Mental Health Japan Survey (WMH-J) is a community-based epidemiologic survey of common mental disorders among people aged 20 years old or older (Kawakami et al., 2005) that forms a part of the WHO World Mental Health Initiatives (Kessler et al., 2006). Within this study, we had the opportunity to assess lifetime experience of “hikikomori” among the respondents and their families. The purpose of this study is to clarify the lifetime prevalence and demographic correlates of “hikikomori”, along with its comorbidity with mood, anxiety, impulse control, and substance use disorders.

## 2. Method

### 2.1. Subjects

The World Mental Health Japan (WMH-J) is a face-to-face household survey conducted in 2002–2006. The survey sites included one metropolitan city (Yokohama City), two urban cities (Okayama City and Nagasaki City), and eight rural municipalities (Kushikino City, Fukiage Town, Ichiki Town, Higashiichiki Town and Tamano Town in Kagoshima prefecture; Sano City in Tochigi prefecture; Tendo City and Kaminoyama City in Yamagata prefecture). These sites were selected in consideration of both their geographic variation and the availability of site investigators. From voter registration lists and resident registries, the respondents were randomly selected from residents aged 20 years or older at each survey site. It was initially supposed that when the sample size was 5000 and if the lifetime prevalence of Hikikomori was 1% in the population, one could estimate the prevalence with 0.14% (14% of the prevalence) of standard error. Trained interviewers conducted a face-to-face interview with those who agreed to participate in the survey, using a standard instrument. We excluded subjects who had died, moved, or had been institutionalized. A total of 4134 interviews were obtained. The total response rate was 55.1%. The respondents tended to be females and younger generation compared with the non-respondents (Kawakami et al., 2005). Written consent was obtained from each respondent at each site. The Human Subjects Committees of Okayama University (for the Okayama site), Japan NIMH (for the Kagoshima site), Nagasaki University (for the Nagasaki site), Jichi Medical School (for the Tochigi site), Yamagata University (for the Yamagata site), and Juntendo University (for the Yokohama site) approved the recruitment, consent, and field procedures.

### 2.2. Measures

#### 2.2.1. Assessment of “hikikomori”

We defined “hikikomori” as a state of social withdrawal for more than 6 months, not going to work or school, except for occasionally going out, but not communicating with people besides family members, which is in concordance with the definition used in previous research (Kim et al., 2002). Two sets of questions about “hikikomori” were developed to ascertain the prevalence and characteristics of “hikikomori”. The first set concerned the lifetime experience of “hikikomori” among respondents. Since “hikikomori” is a type of psychopathology mostly seen in younger generations (Suwa and Suzuki, 2002; Kobayashi et al., 2003; Takahata, 2003), we first asked each respondent aged 20–49 years old ( $n=1660$ ) about whether he or she had ever experienced a state of “hikikomori” as defined above (see Appendix A for the questionnaire). However, if he/she reported a chronic physical illness or injury as a reason for the state of “hikikomori” (as asked in the question WD4), we did not count the case as “hikikomori”. If he/she ever had an experience of “hikikomori”, we further asked the age of the first onset (categorized as 10–14, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44, and 45–49 years old), the duration (6–11 months, 12–23 months, 24 months or longer), and whether they had worried about their situation (yes, no), had episodes of violence toward another (yes, no), and had any work or school responsibilities when experiencing “hikikomori” (“No”, “Yes, and I wanted to go but could not”, and “Yes, I did, but I did not want to go”). The second, and supplemental, set of questions was concerned with current experiences of “hikikomori” among the children of the respondents. We asked each respondent who had children about whether their child(ren) currently had “hikikomori”. If a respondent had a child who met the above criteria for “hikikomori”, we then asked about the number of such children and their current ages.

#### 2.2.2. Diagnosis of psychiatric disorders

To assess lifetime experience of psychiatric disorders, we used version 3.0 of the Japanese version of the WHO Composite International Diagnostic Interview (WHO-CIDI 3.0) (Kessler and Ustun, 2004), a fully structured diagnostic interview that generates DSM-IV diagnoses (American Psychiatric Association, 1994). The following psychiatric disorders were assessed: mood disorders (major depression, dysthymic disorder, manic and hypomanic episodes), anxiety disorders (generalized anxiety disorder [GAD], social phobia, specific phobia, panic disorder, and post-traumatic stress disorder [PTSD]), intermittent explosive disorder (IED), and substance-related disorders (alcohol abuse and dependence, drug abuse and dependence). The WHO-CIDI 3.0 is divided into two parts. Part I, which includes basic sociodemographic data and a core diagnostic assessment, was administered to all respondents. Part II assesses additional disorders (PTSD and substance-related disorders). Part II was then administered to all Part I respondents who met the criteria for any mental disorder and to a probability subsample of other respondents ( $n=1722$ ). To examine psychiatric comorbidity of “hikikomori”, we categorized the temporal relationship between “hikikomori” and a psychiatric disorder into three categories: (a) psychiatric disorder occurred before “hikikomori”, (b) psychiatric disorder occurred in the same year “hikikomori” started, and (c) psychiatric disorder occurred during or after “hikikomori”.

#### 2.2.3. Sociodemographic variables

Sociodemographic variables included age (defined by age at interview and categorized as 20–29, 30–39, 40–49 years old) and gender. If a respondent had a child with current “hikikomori”, the age of the child was asked and categorized (15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49 years old).

### 2.3. Statistical analysis

The Part II respondents were weighted by the inverse of their probability of selection to adjust for the differential sampling of cases and non-cases. In addition to this Part II weight, all samples were weighted to adjust for differential

**Table 1**

Lifetime prevalence of “hikikomori” by sex and age among community residents aged 20–49 years old in Japan: The World Mental Health Japan Survey 2002–2006.

	%	95%CI	n	Weighted n
Total	1.2	0.6–1.7	19	22.2
Sex*				
Male	1.8	0.9–2.8	14	18.2
Female	0.4	0.0–0.8	5	4.0
Age*				
20–29	2.4	0.8–4.0	9	12.7
30–39	0.3	0.0–0.7	2	2.1
40–49	1.1	0.3–1.9	8	7.3

\* $p<0.01$  for sex or age difference.

Weighted for the Part I sample according to census distributions of sex and age.

**Table 2**  
Characteristics of “hikikomori” cases ( $n = 19$ ) among community residents aged 20–49 years old in Japan: The World Mental Health Japan Survey 2002–2006.

	%	95%CI	$n$	Weighted $n$
<i>Age at first onset of “hikikomori” (years)</i>				
10–14	20.1	0.0–44.0	3	4.5
15–19	37.4	15.2–59.6	6	8.3
20–24	11.3	0.0–25.5	3	2.5
25–29	13.7	0.0–30.2	3	3.0
30–34	0	–	0	0.0
35–39	0	–	0	0.0
40–44	9.4	0.0–19.3	2	2.1
45–49	4.4	0.0–14.2	1	1.0
Unknown	3.7	0.0–12.2	1	0.8
<i>Longest duration of “hikikomori” (months)</i>				
6–11	52.9	27.3–78.4	11	11.7
12–23	26.8	9.4–44.2	4	5.9
24–	16.3	0.0–37.3	3	3.6
Unknown	4.1	0.0–13.3	1	0.9
<i>Feel distress due to “hikikomori”</i>				
Worried or irritable	77.8	63.4–92.2	15	17.3
None	22.2	7.8–36.6	4	4.9
<i>Work or school duties during “hikikomori”</i>				
None	33.6	15.6–51.5	7	7.5
Yes, I wanted to go but could not	9.6	0.0–23.3	2	2.1
Yes, but I did not want to go	49.8	27.6–71.9	8	11.0
Unknown	7.1	0.0–16.9	2	1.6

Weighted for the Part I sample according to census distributions of sex and age.

probabilities of selection and post-stratified to match the population distributions for the cross-classification of sex and age, for which the non-response weight in a given group with sex and age was the inverse of the response rate in this category. The weighting procedure is described in more detail elsewhere (Kawakami et al., 2005).

We estimated the prevalence of “hikikomori” and the size of the “hikikomori” population in Japan. The total numbers were counted for each feature of “hikikomori” and the psychiatric diagnosis made for each respondent who had experienced “hikikomori”. Logistic regression analysis was used to examine the relation between the experience of “hikikomori” and any psychiatric diagnoses made during the lifetime. All samples were weighted to adjust for differential probabilities of selection and post-stratified to match the population distributions for the cross-classification of sex and age, for which the non-response weight in a given group with sex and age was the inverse of the response rate in this category.

All significance tests were evaluated at the 0.05 level with two-sided tests. The analyses were performed using SPSS version 14.0 and SAS version 9.1.

### 3. Results

#### 3.1. Lifetime prevalence of “hikikomori” among respondents

Of all respondents, 1.2% of community residents had experienced “hikikomori” (Table 1). The lifetime prevalence was higher among respondents in their twenties than in those in their thirties or forties ( $P < 0.01$ ). The lifetime prevalence of “hikikomori” was higher in males than in females ( $P < 0.01$ ).

#### 3.2. Selected characteristics of “hikikomori” cases

The average age at the onset of “hikikomori” was 22.3 years old (Table 2). The average duration of “hikikomori” was about 1 year. For half of the cases with “hikikomori”, the duration was less than 12 months. About 80% of the “hikikomori” cases had been worried or irritable about their situation during their period of “hikikomori”. More than 30% of the cases did not currently have a job or attend school. Among the remaining 70% who had work or school duties, 14.5% could not go to work or attend school although they wanted to, while 75.0% did not want to go. All subjects reported that they had not used violence toward anyone or injured anyone during their period of “hikikomori”.

#### 3.3. Psychiatric comorbidity of “hikikomori”

A total of 54.5% of the “hikikomori” cases fulfilled the diagnostic criteria of having at least one psychiatric disorder in their lifetime (Table 3). The lifetime prevalence of having a psychiatric disorder was higher compared with that for the remaining respondents aged 20–49 years (29.5%). Respondents with lifetime experience of “hikikomori” had a 6.1 times higher risk of mood disorder during their lifetime (95% CI, 2.2–17.1). No anxiety disorder, intermittent explosive disorder or

**Table 3**  
Lifetime comorbidity of “hikikomori” with mood, anxiety, and substance-related disorders (DSM-IV): Logistic regression model.

	Lifetime prevalence among people who experienced “hikikomori”	Lifetime prevalence among community residents aged 20–49	Odds ratio <sup>a</sup>	95%CI	$p$
Anxiety disorder <sup>b</sup>	18.2	11.5	1.9	0.5–7.1	0.31
Mood disorder	31.8	9.1	6.1	2.2–17.1	<0.001
Substance-related disorder <sup>b</sup>	25.0	9.7	2.6	0.6–10.8	0.19
Intermittent explosive disorder	8.7	2.6	2.6	0.3–20.0	0.35
Psychiatric disorder <sup>b</sup>	54.5	29.5	3.2	0.9–11.7	0.08

<sup>a</sup> Adjusted for sex and age cohort (20–29, 30–39, and 40–49 years old at survey).

<sup>b</sup> Based on the Part II sample ( $n = 730$ ) and Part II weight. Otherwise, weighted for Part I sample according to census distribution of sex and age.

**Table 4**

DSM-IV psychiatric diagnosis of subjects who experienced “hikikomori” (weighted  $n = 22.2$ ) among community residents aged 20–49 years old in Japan: The World Mental Health Japan Survey 2002–2006 (%).

	Onset preceding “hikikomori”	In the same year as onset of “hikikomori”	Onset after onset of “hikikomori”
Generalized anxiety disorder	6.3	4.3	6.3
Social phobia	14.8		
Specific phobia	12.5		
Alcohol abuse or dependence <sup>a</sup>	10.7		10.9
Hypomanic episode			7.8
Major depressive episode	4.2	16.0	
Dysthymic disorder	4.2		
Intermittent explosive disorder (IED)	7.6		
Psychiatric disorder <sup>a</sup>	35.2	17.4	16.0

One case could be classified into two or three categories due to possibility of multiple psychiatric comorbidities, and 45.5% of “hikikomori” cases had never experienced a psychiatric disorder (i.e., mood/anxiety/IED/substance use disorders).

<sup>a</sup> Based on the Part II sample (weighted  $n = 11.6$ ).

any substance-related disorder was significantly related to having the experience of “hikikomori”.

About 35% of the respondents met the criteria for any psychiatric disorder before the onset of “hikikomori” (Table 4). Major depressive episode was seen in 16% of respondents in the same year of the onset of “hikikomori”. Generalized anxiety disorder was seen throughout the lifetime, and alcohol abuse or dependence was seen before and after the onset of “hikikomori”.

#### 3.4. Current prevalence of “hikikomori” among the children of respondents

Among the respondents, 0.5% reported that they had a child who had experienced or was experiencing “hikikomori” (Table 5). The mean age of the children with “hikikomori” was 28.9 years.

## 4. Discussion

This was the first study to report the lifetime prevalence and demographic correlates of “hikikomori” and its comorbidity with psychiatric disorders in a general population of Japan. We found that the lifetime prevalence of “hikikomori” was about 1% among community residents aged 20–49 years old. In particular, the lifetime prevalence of “hikikomori” among respondents in their twenties was high, at about 2%, which is very similar to the prevalence reported from a previous study of high school students and people aged 20–29 years old in a rural area (Kim et al., 2002). These findings suggest that “hikikomori” is a relatively common form of psychopathology among adolescents and younger adults in Japan. Also in our study, about 0.5% of respondents reported that at least one child in their family was currently experiencing “hikikomori”. When we apply this figure

to the entire population of Japan, it is estimated that 232,000 people currently suffer from “hikikomori”.

In our study the average duration of the “hikikomori” psychopathology was about 1 year, which is much shorter than that of previous studies of public and private health center visitors, which was about 4 years (Kobayashi et al., 2003; Takahata, 2003). One reason for this difference may be that only severe cases had visited public or private health centers in the previous studies. The average duration of “hikikomori”, therefore, may be shorter than what had been previously supposed, although it may be longer for some severe cases. A total of 78% of the “hikikomori” cases in our study reported that they had felt worried or irritable about their “hikikomori” situation, suggesting that “hikikomori” is accompanied by distress in addition to social impairment (withdrawal). On the other hand, most of the “hikikomori” cases did not feel the desire to go to work or attend school even if they still had such a duty. For these people who do not go to work or attend school without apparent reason, “hikikomori” may thus be a psychopathology characterized by impaired motivation. It should be noted that there was no evidence in this study for the relationship of “hikikomori” with violent behaviors.

Many of the cases in our study had first onset of “hikikomori” in their teens or twenties. The peak age of onset was 15–19 years, which is consistent with previous findings among public and private health center visitors (Suwa and Suzuki, 2002; Kobayashi et al., 2003; Takahata, 2003). Some cases of “hikikomori” had their onset in their thirties or forties, on the other hand. These cases might be related to particular social situations such as the loss of one's job, suggesting that a different psychopathology needs to be considered for cases with onset in middle age. In addition, among cases who had “hikikomori” in their thirties or forties, some had first experienced it in their teens or twenties, suggesting that the “hikikomori” is not a recent phenomenon, but a problem that has occurred for several decades, while these cases were less socially recognized at the beginning. Lifetime prevalence of “hikikomori” was greater in males than in females in our study, which is consistent with previous findings on those who visited public or private health centers (Takahata, 2003).

More than 50% of the respondents who had experienced “hikikomori” also had experienced a psychiatric disorder sometime in their lifetime. In addition, they had a 6.1 times higher risk of lifetime comorbidity of a mood disorders compared with those who had not experienced “hikikomori”. This suggests that “hikikomori” is a psychopathology highly comorbid with psychiatric disorders. Among those who had experienced “hikikomori”, 35% had experienced one of a wide range of psychiatric disorders preceding the onset of “hikikomori”, including social phobia and specific phobia. For these cases, psychiatric disorders may be a predisposing or risk

**Table 5**

Age distribution of current cases with “hikikomori” ( $n = 23$ ) among children of community respondents in Japan: The World Mental Health Japan Survey 2002–2006.

Age (year)	%	95%CI	<i>n</i>	Weighted <i>n</i> <sup>a</sup>
15–19	8.6	0.0–17.3	2	1.8
20–24	9.1	0.0–18.8	2	1.9
25–29	32.8	15.7–50.0	8	6.9
30–34	12.7	0.0–28.9	3	2.7
35–39	–	–	–	–
40–44	5.5	4.9–6.0	1	1.1
45–49	8.3	0.0–19.1	2	1.7
Unknown	23.0	6.7–39.3	5	4.8

<sup>a</sup> Weighted for Part I sample according to census sex and age distributions.

factor for the onset of “hikikomori” because anxiety and fear may be connected to social withdrawal. Further, for those cases with psychiatric comorbidity occurring in the same year as “hikikomori”, “hikikomori” may be one of the symptoms or an aspect of social impairment of a psychiatric disorder. In particular, some people with severe depression would not be able to go to work or school and communicate with people except for family members. In our study, these people are included in “hikikomori”. It would be important to differentiate these people from “hikikomori” without the presence of psychiatric disorder in future studies.

A total of 45.5% of the “hikikomori” cases had no lifetime experience of a psychiatric disorder. Kinugasa (1998) referred to “hikikomori” cases without the presence of psychiatric disorder as a “primary hikikomori”. Our study indicated that about a half of the cases with “hikikomori” were free from a psychiatric disorder, providing evidence supporting this view. A certain proportion of “hikikomori” cases may be a social and behavioral problem resulting from an interaction between individuals, family, and society, not a symptom of psychiatric disorder. Based on clinical experience with “hikikomori” in Japan, Kinugasa (2001) pointed out that adolescents in Japan, especially boys, are in recent years more worried and reluctant to go into adulthood and work in a competitive society in which they feel that the weak and the losers are not accepted, and that this may be a factor for developing “hikikomori”. Ambivalent feelings which were reported from the “hikikomori” cases in the study, i.e., distress about their “hikikomori” stimulation but low motivation to work or go to school, as well as the male dominance and the peak onset age in the late adolescence (15–19 years old), agree with this hypothesis. It is also suggested that lowered communication among an individual, his/her family, and the society, which is typically seen in modern-day Japanese society, is an underlying factor that prolongs the duration of “hikikomori” once it is triggered by an acute life event (Saito, 1998). While the competitive but rapidly changing society and changing family relationship in modern-day Japan seem contribute to the development of “hikikomori” to some extent, it is not clear from the present study whether the “hikikomori” is a culture-bound syndrome. A cross-country study of “primary hikikomori” excluding those comorbid with psychiatric disorders is needed to answer this question, simultaneously measuring societal norms and family functions and including both collectivist (such as Asian countries) and individual-oriented countries (such as US and Europe).

However, Suwa and Suzuki (2002) have pointed out that some people who attended group therapy for “hikikomori” had various psychiatric disorders, some of which we did not assess in our study. It is thus possible that some cases whom we defined in our study to be mentally healthy had a psychiatric disorder that we did not assess. Especially, we did not measure schizophrenia in the present study, which might explain the remaining part of “hikikomori” cases. In addition, developmental disorders or personality disorders, which often cause difficulties in social interaction and communication, may underlie and cause acute “hikikomori”, e.g., triggering by adverse social events.

Concerning the current prevalence of “hikikomori” among the children of the respondents, about 0.5% of respondents reported that they had a child who had or was experiencing “hikikomori”. Thus we can estimate that approximately 232,000 households currently have a child with “hikikomori” in Japan (based on the total number of households in Japan [about 46 million] and the total population [about 128 million] in 2003). If we assume that at least one child with “hikikomori” lives in each of these households, then the population of “hikikomori” in Japan can be estimated to be, at minimum, 232,000.

We should interpret our results cautiously because there are some limitations to our study. First, this is not a study specifically designed to study the prevalence of hikikomori, but it is a substudy

derived from the World Mental Health Japan Survey. Second, the response rate was 55%, and men and younger people were less likely to be respondents, which may affect the findings. Although the survey was announced to subjects as having a broad scope of mental health in general, some people may feel that emotional problems, including “hikikomori”, were shameful experiences and then decline to participate in the survey. Therefore, the prevalence may have been higher in non-responders than in responders. Third, as this study does not assess present “hikikomori” but past experiences of it, the prevalence of “hikikomori” in older generations might be underestimated because of recall bias. Fourth, we could not assess all psychiatric disorders. Respondents who were diagnosed as not having any disorder in our survey might meet the criteria for other psychiatric disorders that we did not assess. Fifth, the Japanese version of the WHO-CIDI has not yet been fully validated against clinical diagnoses, although it was developed by an expert group and checked through an expert review and a back-translation procedure. The observed prevalence may have therefore been over- or under-estimated in the present study. Sixth, we did not assess “hikikomori” by using fully validated measures. In Japan, a measure to assess “hikikomori” has been developed (Sakai et al., 2004). Therefore, for further studies of “hikikomori”, a validated measure should be used.

In conclusion, 1.2% of community residents aged 20–49 years and 0.5% of households in Japan have experienced or currently have “hikikomori”. About half of these cases are comorbid with a number of possible psychiatric disorders; the others are free from psychiatric disorders, suggesting that “hikikomori” has causes different from those of psychiatric disorders. It is necessary to investigate the association between “hikikomori” and psychiatric disorders in detail to better understand the psychopathology of “hikikomori” and develop more effective prevention and treatment measures.

#### Acknowledgments

The WMH-J 2002–2006 Survey Group members other than those listed in the author byline are as follows: Yutaka Ono, MD (Health Center, Keio University), Yoshibumi Nakane, MD (Division of Human Sociology, Nagasaki International University Graduate School), Yosikazu Nakamura, MD, MPH, FFPH, Makoto Watanabe, MD, PhD, Masayo Kobayashi, MD (Department of Public Health, Jichi Medical School), Akira Fukao, MD, Masashi Oorui, MD (Department of Public Health, Yamagata University, Graduate School of Medical Science), Itsuko Horiguchi, PhD, Yuko Yamamoto, PhD (Department of Public Health, Juntendo University Graduate School of Medicine), Yoichi Naganuma, PSW, PhD, (National Institute of Mental Health, National Center of Neurology and Psychiatry), Noboru Iwata, PhD (Department of Clinical Psychology, Hiroshima International University), Hidenori Uda, MD (Director General of the Health, Social Welfare, and Environmental Department, Osumi Regional Promotion Bureau, Kagoshima Prefecture), Hideyuki Nakane, MD (Division of Neuropsychiatry, Department of Translational Medical Sciences, Nagasaki University Graduate School of Biomedical Sciences), Kazushi Funayama, MD, PhD (Yokohama City Turumi Public Health and Welfare Center), Toshiaki A. Furukawa, MD (Department of Psychiatry and Cognitive-Behavioral Medicine, Nagoya City University Graduate School of Medical Sciences), Yukihiko Hata, MD (Department of Psychiatry, Field of Social and Behavioral Medicine, Kagoshima University Graduate School of Medical and Dental Sciences), Tadayuki Ahiko, MD (Murayama Public Health Center, Yamagata Prefecture), and Takehiko Kikkawa, MD (Department of Human Well-being, Chubu Gakuin University).

The study was supported by grants from the Japan Ministry of Health, Labour, and Welfare (H13-SHOGAI-023, H14-TOKUBETSU-026, H16-KOKORO-013, H19-KOKORO-IPPAN-011). We thank the staff members and other field coordinators in the WMH Japan 2002–2006 Survey. The WMH Japan 2002–2006 Survey was carried out in conjunction with the World Health Organization World Mental Health (WMH) Survey Initiative. We also thank the WMH staff for their assistance with instrumentation, fieldwork, and data analysis. These activities were supported by the United States National Institute of Mental Health (R01MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the US Public Health Service (R13-MH066849, R01-MH069864, and R01 DA016558), the Fogarty International Center (FIRCA R01-TW006481), the Pan American Health Organization, Eli Lilly and Company, Ortho-McNeil Pharmaceutical, Inc., GlaxoSmithKline, and Bristol-Myers Squibb. A complete list of WMH publications can be found at <http://www.hcp.med.harvard.edu/wmh/>.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2008.10.019.

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## ORIGINAL PAPER

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## Mental health literacy of autism spectrum disorders in the Japanese general population

Received: 7 May 2008 / Revised: 21 November 2008 / Published online: 18 December 2008

**Abstract** *Objective* We aimed to clarify the public's mental health literacy of autism spectrum disorders (ASD). *Methods* Using a vignette of a young child, 500 Japanese participants were asked their perspectives, such as causes and appropriate coping strategies. For each response from those respondents who correctly identified the child as having autism, we tested the effects of sex and generation. *Results* Two hundred twenty-nine respondents (45.8%) correctly identified the child as having autism. Significantly ( $P < 0.05$ ) more females planned practical coping strategies such as contacting public agencies, whereas males had relatively more irrelevant perceptions, for example, significantly more males attributed ASD to social environment. Significantly more young

respondents expected psychiatric treatments such as antipsychotic administration to be effective, and more seniors estimated low that the prevalence is approximately 0.01% or less. *Conclusions* The mental health literacy of ASD among the Japanese public appears to be acceptable but there is still much room for improvement. Females showed more accurate knowledge, possibly reflecting gender roles. Some young people are not likely to know of the impact of psychiatric treatment, and seniors appear to be unaware of the current broadened recognition of ASD. Continued efforts to disseminate accurate information are required, particularly among males.

**Key words** autism spectrum disorders (ASD) – mental health literacy – public – vignette

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### Introduction

Autism spectrum disorders (ASD) is one of the core developmental disorders in which people demonstrate qualitative impairment in social interaction and communication with stereotyped/repetitive interests/behaviors. Until the mid 1990s, ASD had been thought to be very rare; however, several recent epidemiological studies have reported a much higher prevalence of ASD [6]. For example, Baird et al. [4] reported a prevalence of 1.16% for all ASD, which is almost equal to or even higher than that reported for schizophrenia [16]. Such a significant rise in ASD prevalence was possibly brought about by broadened recognition of individuals with milder ASD, who may have been overlooked in the early studies.

The relatively higher prevalence of ASD means that anyone could either have a child with ASD or have close contact with someone who does. Since



early intervention is important both for enhancing the social adaptation of children with ASD and for reducing parental difficulties [14, 15, 19], the outcome for the children might depend on early recognition of symptoms and appropriate actions by people around. In other words, all persons can be considered as primary agents in the management of the disorder.

The concept of "mental health literacy" was introduced by Jorm et al. [12] to define "knowledge and beliefs about mental disorders which aid their recognition, management or prevention." Currently, the public has not appeared to share the beliefs of clinicians with regard to the treatment and etiology of mental disorders [11]. However, previous research has focused mainly on schizophrenia or depression [2], and the public mental health literacy of other conditions, including ASD, remains to be clarified.

Some previous studies exploring the mental health literacy of autism have reported the beliefs of parents [8, 18], school teachers [10, 18] and professionals such as pediatricians and speech/language pathologists [9, 17], and all of these studies found that non-specialists in the field of autism hold misconceptions about the disorder. To our knowledge, however, only one study, conducted in England, has reported on the public beliefs of ASD [7]. In that study, the authors asked 92 participants (61 female; mean age = 32.9 years, range = 18–65) to what extent (seven-point scale) they agreed with 24 declarative statements about the etiology and treatment of autism, and noted that the view of lay people was very much in line with academic beliefs at that time [7]. For example, brain abnormalities were viewed as a more accurate etiology than others such as bad upbringing, and one-to-one behavior therapy was regarded as much more effective than a belief in God [7]. However, since the respondent sample was small in size and biased toward a higher socioeconomic class than the general population [7], a more representative study based on a larger number of respondents is needed to assess the public's beliefs about ASD.

That same study [7] found that amount of knowledge, age, religiousness, and interest in mental illness predicted one's beliefs about autism. Thus, the backgrounds of subjects likely influenced his/her mental health literacy of ASD. Among those possible backgrounds, primary demographics such as sex and generation would be key factors in identifying who is the major target of intervention in our country.

Given this background, in this study we aimed to clarify the public's mental health literacy of ASD by sex and generation through a Japanese nationwide survey.

## Methods

### Procedures

With approval from the Human Subjects Committee of the National Institute of Mental Health, Japan, a survey entitled "Survey on

the public awareness about the health of mind and body" was conducted in early 2007 in cooperation with Yamate Information Processing Center, Ltd. The area sampling method [5] which is a type of cluster sampling method was adopted. From a list of major cities in Japan (the 23 wards of Tokyo, government-designated cities, and regional core cities) arranged geographically from north to south, five cities were selected for every 10 million population. Sapporo was randomly assigned and the four other cities were thereby selected. In each area where these five cities were located (see Table 1), ten municipalities were extracted statistically (re-selections were possible).

Trained examiners visited respondents' homes arbitrarily, but they had to select respondents as follows: (a) in homes, at least 10 doors away from each other, and (b) in cluster housing, one from every 30 families, and at least three floors away from each other. The examiners explained the outline of the study alongside a written explanation and the interviews started if respondents agreed to participate. The structured interview using the questionnaires outlined below took approximately 40 min. At the end of the interview, the participants were thanked and rewarded with a cash voucher of 500 yen for their cooperation. The survey was continued until a predetermined number of answers were obtained.

### Vignette

Prior to the interview, respondents were asked to read one vignette randomly assigned from four vignettes describing different mental disorders. None of the respondents were told the diagnosis in the interview. The vignette of ASD (see Appendix 1) had been created by the first and second authors based on the assumption that the child had mild mental retardation and demonstrated moderate to severe autistic

**Table 1** Demographics of the respondents ( $n = 500$ )

		Respondents who correctly identified ASD <sup>a</sup> ( $n = 229$ )
Male (%)	50.0	43.7*
Generation (%)		
Young (age, 20–37)	33.4	32.8
Middle-aged (38–51)	32.0	32.3
Senior (52–69)	34.6	34.9
Area of residence (%)		
Do-o (Sapporo, etc.)	20.0	19.7
Tokyo (Saitama, etc.)	20.0	22.3
Keihin (Yokohama, etc.)	20.0	18.3
Keihan (Osaka, etc.)	20.0	21.4
Sanyo (Hiroshima, etc.)	20.0	18.3
Educational level (%)		
Junior high school	6.6	6.1
High school	45.6	42.8
Junior college	20.8	23.6
University	22.6	22.7
In school	4.4	4.8
Current standard of living <sup>b</sup> (mean)	5.4	5.5
Experiences of mental health (%)		
Received any treatment	9.0	6.6 <sup>†</sup>
Family/relative/close friend has	32.8	35.4
Involved as professional	6.4	8.3
Gained from TV/newspapers	93.2	96.5**

ASD autism spectrum disorders

<sup>†</sup> $P < 0.10$ ; \* $P < 0.05$ ; \*\* $P < 0.01$

<sup>a</sup>Respondents who answered the diagnosis question as autism. Superscripts indicate significant difference between respondents who answered otherwise ( $n = 271$ )

<sup>b</sup>Current standard of living was documented subjectively in relation to the entire Japanese population from 1 (Lowest) to 10 (Highest)

symptoms. The life of the child is impaired significantly by qualitative impairment in social interaction (lack of interest in other people), qualitative impairment in communication (lack of pointing or gestures), and restricted interests (inflexible adherence to routine). Experienced psychiatrists confirmed that the vignette portrayed a child who would meet the diagnostic criteria of pervasive developmental disorders (PDD) according to DSM-IV [1] and ICD-10 [20]. The sex of the child and parent is not specified to prevent any preconceived ideas, although many people may assume they are a boy and his mother. The vignette had "hiragana" printed beside each Chinese character (kanji) so that all participants could read the contents easily.

## Questionnaire

Before creating the questionnaire, we made an intensive keyword search for similar previous studies on the Internet (PubMed, PsycINFO) using terms such as 'literacy', 'knowledge', 'belief', 'awareness', 'attitude', and 'stigma' based on the previous review studies [2, 11]. The questionnaire was developed by consensus of the research team to include frequently-asked/core literacy questions, demographics, and family and past history. None of the questions were open-ended, that is, each question allowed for a single choice or multiple choices from prepared answers.

The details of the questions examined in the current study are as follows. As to the possible problem of the child (diagnosis), 17 answers (including none, don't know and other) were listed and respondents were asked "In your opinion, what kind of a problem does the child have? Circle 1 answer that best describes the child's problem." We also assessed the perspectives of the respondents by asking them to select the following: up to three causes; prognosis when receiving the most ideal form of help and no help; up to three appropriate coping strategies; helpfulness/effectiveness of certain specialist involvement/treatment; estimations of the prevalence; and the likelihood of one of their family members or close friends experiencing the same situation.

### Respondents

The demographics of 500 respondents who were asked to read the ASD vignette are summarized in Table 1.

### Statistical analysis

First, the answers of respondents who identified that "autism" best described the child's problem were recorded. Second, for each of the recorded answers, we tested the effects of sex and generation by a generalized linear model (GLZ) with a binomial logit model or ordinal multinomial cumulative logit model. If a significant effect was found for generation, post hoc comparisons were made using Bonferroni correction, although they were not applied to ordinal multinomial responses.

All tests were 2-tailed and significance was set at  $P < 0.05$ . All statistical analyses were performed with SPSS 17.0J for Windows.

## Results

Two hundred twenty-nine respondents (45.8%) identified that "autism" best described the child's problem. The other frequent answers were "developmental disorder" (14.2%), "disease of the mind" (11.4%), and "intellectual disability" (7.6%). Some respondents answered "none" (no problem) (7.6%).

The answers of 229 respondents who correctly identified the child as having autism for each literacy

question are presented in Table 2. As to the causes, "brain abnormality" was selected most often although only by 57.6% of respondents; only 16.6% of the respondents selected the option "genetics." Approximately 90% of the respondents thought the child would partially recover when receiving the most ideal help, but when receiving no help, about 70% thought the child's condition would remain unchanged or would worsen. 73.8% and 59.0% of the respondents answered that they would find it appropriate to "talk to professionals" and "attend self-help groups," respectively. Most respondents considered doctors to be helpful, but they were especially unwilling to let the child take medicine or be hospitalized. Instead, psychotherapy and remedial education were considered highly acceptable forms of treatment. The most frequent answers for the estimation of the prevalence were about 0.1% and about 1%. Six respondents (2.6%) answered that their relatives would never experience the same situation.

### Effect of sex and generation

#### Causes

As shown in Table 3, compared with females, significantly more males attributed the condition to "social environment."

#### Prognosis

Males were more optimistic than females about the prognosis of the child when receiving the most ideal help, and the main effect of sex was significant ( $\chi^2_{(1)} = 6.4, P = 0.012$ ); only 2.3% of females expected full recovery of the child, whereas 10.0% of males expected so. Males were more optimistic even in the case of receiving no help, but the main effect of sex was not statistically significant ( $\chi^2_{(1)} = 3.1, P = 0.077$ ).

#### Coping strategies

As shown in Table 3, a significant main effect of sex was found on "go out more often" and "contact public agencies"; females were significantly more ready to contact public agencies, while males were likely to manage on their own through outings.

#### Helpfulness/effectiveness of certain specialist involvement/treatment

As shown in Table 4, there was a significant main effect of sex for "hypnotherapy"; males were more

**Table 2** Proportion of respondents (%) in relation to the perspectives of autism spectrum disorders (ASD) ( $n = 229$ )

Causes <sup>a</sup>	
Stress	15.7
Genetics	16.6
Temperament	31.0
Upbringing	21.0
Problems during birth	25.3
Brain abnormality	57.6
Social environment	11.4
No particular cause	5.7
Don't know	8.3
Prognosis, when receiving the most ideal help	
Recover fully without any problem	5.7
Recover to the point of having no living impairments	53.3
Recover with some living impairments	37.1
No change	3.9
Get worse	0.0
Prognosis, when receiving no help	
Recover fully without any problem	0.4
Recover to the point of having no living impairments	7.9
Recover with some living impairments	21.8
No change	28.4
Get worse	41.5
Coping strategies <sup>b</sup>	
Go out more often	27.1
Be more physically active	15.3
Talk to people	23.1
Talk to a family physician	22.7
Talk to professionals	73.8
Contact public agencies	25.3
Attend self-help groups	59.0
Gather information	27.5
Don't know	0.0
Specialist involvement <sup>c</sup> , helpful	
Family physician	69.9
Psychiatrist	81.7
Psychologist or counselor	89.5
Social worker	59.3
Telephone service	47.4
Complementary therapists	7.5
Treatment <sup>c</sup> , effective	
Antidepressants	9.7
Antipsychotics	15.5
Admission to a psychiatric ward	10.9
Admission to a general ward	5.7
Psychotherapy	86.0
Remedial education	84.3
Hypnotherapy	9.6
Prevalence estimation	
Less than about 0.01%	14.4
About 0.1%	37.1
About 1%	41.5
About 5%	4.4
About 10%	1.7
More than about 20%	0.9
Likelihood of one of their family members or close friends experiencing the same situation	
Very high	3.1
High	26.6
Neither high nor low	24.5
Low	31.9
Very low	11.4
Zero	2.6

<sup>a</sup>Multiple answers, up to three from 19 prepared answers (including don't know and others). Only frequent answers are reported

<sup>b</sup>Multiple answers, up to three from 18 prepared answers (including don't know and others). Only frequent answers are reported

<sup>c</sup>Respondents who did not understand the meaning of a particular term or phrase were excluded

positive about receiving hypnotherapy. A significant main effect of generation was found for “antipsychotics” and “admission to a psychiatric ward”; more young respondents thought that these treatments would be effective, and the post hoc comparisons with Bonferroni correction showed significant differences between young and other respondents.

### Prevalence

The main effect of generation was significant ( $\chi^2_{(2)} = 9.0, P = 0.011$ ); 27.5% of senior respondents selected the lowest estimation of “less than about 0.01%,” while 9.3% of young respondents and 5.4% of middle-aged respondents answered so. As to the likelihood of one of their family members or close friends experiencing the same situation as Person A in the vignette, there was also a significant main effect of generation ( $\chi^2_{(2)} = 6.7, P = 0.035$ ); senior respondents were more optimistic, with 21.3% believing the possibility was very low or zero, compared with 12.0% of young and 8.1% of middle-aged respondents.

### Discussion

To our knowledge, this is the first study to clarify public knowledge and beliefs of ASD in Japan. Compared to previous studies that explored the mental health literacy of autistic children [7–10, 17, 18], the present study which is based on a relatively large sample of respondents from a nationwide survey might be more representative.

Many of our Japanese respondents recognized the condition written in our original vignette as some kind of developmental abnormality, but fewer than 50% identified it specifically as autism. This result might have been attributable to the fact that the vignette lacked information about the child having poor eye contact. Although we had created the vignette so as not to be identified too easily as autism by such a classic symptom, it is surprising that some, and considerably more than those for other disorders (schizophrenia, 0.4%; depression, 0.8%; alcohol dependence, 0.2%; our own unpublished data, in preparation), considered the condition as no problem.

Consistent with a previous study conducted in England [7], the perspectives of lay people in Japan were largely in line with current academic beliefs regarding ASD, but there is still much room for improvement. For example, although the autistic condition is thought to have a genetic basis [3], only a small number of the respondents thought that ASD was caused by genetics, regardless of sex and generation. Further comprehensive efforts to enhance public knowledge of ASD are necessary.

**Table 3** Proportion of respondents (%) in relation to the causes of and appropriate coping strategies for autism spectrum disorders (ASD)

	Sex		$\chi^2(1)$	Generation			$\chi^2(2)$
	Male (n = 100)	Female (n = 129)		Young (n = 75)	Middle-aged (n = 74)	Senior (n = 80)	
<b>Causes</b>							
Stress	17.0	14.7	0.2	20.0	8.1	18.8	5.3 <sup>†</sup>
Genetics	16.0	17.1	0.0	18.7	17.6	13.8	0.8
Temperament	32.0	30.2	0.1	40.0	27.0	26.3	4.2
Upbringing	27.0	16.3	3.8 <sup>†</sup>	17.3	20.3	25.0	1.3
Problems during birth	24.0	26.4	0.2	26.7	23.0	26.3	0.3
Brain abnormality	57.0	58.1	0.0	65.3	58.1	50.0	3.7
Social environment	17.0	7.0	5.7*	14.7	9.5	10.0	1.3
<b>Coping strategies</b>							
Go out more often	34.0	21.7	4.2*	24.0	24.3	32.5	1.7
Be more physically active	19.0	12.4	1.8	16.0	10.8	18.8	2.0
Talk to people	21.0	24.8	0.4	26.7	24.3	18.8	1.4
Talk to a family physician	20.0	24.8	0.7	25.3	20.3	22.5	0.5
Talk to professionals	73.0	74.4	0.1	74.7	74.3	72.5	0.1
Contact public agencies	19.0	30.2	3.9*	20.0	31.1	25.0	2.5
Attend self-help groups	52.0	64.3	3.5 <sup>†</sup>	61.3	63.5	52.5	2.1
Gather information	32.0	24.0	1.8	32.0	24.3	26.3	1.2

Multiple answers, up to three each from 19/18 prepared answers for causes/coping strategies (including don't know and others). Only frequent answers are reported  
<sup>†</sup> $P < 0.10$ ; \* $P < 0.05$

**Table 4** Proportion of respondents (%) in relation to the helpfulness/effectiveness of specialist involvement/treatment for autism spectrum disorders (ASD)

	Sex		$\chi^2(1)$	Generation			$\chi^2(2)$
	Male (n = 100)	Female (n = 129)		Young (n = 75)	Middle-aged (n = 74)	Senior (n = 80)	
<b>Specialist involvement</b>							
Family physician	70.0	69.8	0.0	70.7	75.7	63.8	2.6
Psychiatrist	86.0	78.3	2.3	84.0	82.4	78.8	0.8
Psychologist or counselor	89.0	89.9	0.1	86.7	91.9	90.0	1.1
Social worker	55.4	62.2	0.9	57.1	65.6	55.2	1.7
Telephone service	46.5	48.1	0.0	55.4	50.0	37.5	5.3 <sup>†</sup>
Complementary therapists	6.1	8.5	0.5	12.2	5.4	5.0	3.3
<b>Treatment</b>							
Antidepressants	10.0	9.5	0.0	13.3	5.4	10.4	2.9
Antipsychotics	20.9	11.3	3.4 <sup>†</sup>	25.0 <sup>a</sup>	7.6 <sup>a</sup>	13.9	7.9*
Admission to a psychiatric ward	14.0	8.5	1.9	17.3 <sup>a</sup>	12.2	3.8 <sup>a</sup>	8.6*
Admission to a general ward	9.0	3.1	3.6 <sup>†</sup>	2.7	6.8	7.5	2.1
Psychotherapy	90.0	82.9	2.3	84.0	83.8	90.0	1.6
Remedial education	85.0	83.7	0.1	86.7	83.8	82.5	0.5
Hypnotherapy	16.2	4.7	8.6**	10.8	6.8	11.3	1.1

Respondents who did not understand the meaning of a particular term or phrase were excluded

<sup>†</sup> $P < 0.10$ ; \* $P < 0.05$ ; \*\* $P < 0.01$

<sup>a</sup>Figures with the same superscripts on the same line differ significantly from each other by post hoc comparisons with Bonferroni correction

In this study, a larger number of females than males had accurate knowledge and beliefs of ASD. Such sex differences in the mental health literacy of ASD may depend primarily on gender roles in Japanese society. Historically, many females have been engaged in domestic work including childrearing and so may have acquired more accurate knowledge about child development. Given such findings, continued effort is needed to disseminate correct information about developmental milestones, especially to males, in order to change inaccurate and outdated perceptions of ASD.

Although a previous study [7] found that the younger public viewed external factors as etiologic factors in autism, no difference in causal attribution

was found among the three generations in the present study, possibly due to some methodological differences between the studies. In our study, more young respondents than middle-aged and senior respondents expected antipsychotics or psychiatric hospitalization to be effective forms of treatment. Some young people might see fewer barriers to receiving these forms of psychiatric treatments, but we speculate that they do not know the actual impact of such treatments. Further study is required to clarify this issue.

More senior respondents thought that their family members or close friends are unlikely to experience the same situation in life. The fact that older people would already have defined their family and friends