

# Testing a new tool: the management of aggression and violence attitude scale (MAVAS)

*Perhaps due to the complexities of the problem of aggression and violence, and to ethical issues relating to the mental health areas where much of the work is focused, it is the perspective of staff working in those areas that is most commonly sought in research studies. In contrast, tools to examine the patient's view are rare. In this paper Joy Duxbury describes the piloting and development of a new tool, which aimed to survey the views of both patients and staff about the broader approaches used to manage patient aggression. This became the 'Management of Aggression and Violence Attitude Scale' (MAVAS), and the testing of this tool is the focus of this paper*

aggression  
violence  
patients: attitudes  
and perceptions  
staff: attitudes,  
attitude scale

## **Introduction**

Until recently, the problem of patient aggression and violence in healthcare has been a neglected area of investigation. Literature on this subject has

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expanded greatly since 1988 when only 32 articles existed (Poster and Ryan 1993), whereas to date there are more than 1,000 papers on the same topic (Cutcliffe and McKenna 1999). It is evident that concerns prevail about escalating levels of patient violence towards nurses (Delaney *et al* 2001) and as a result, research that aims to examine multiple perspectives from a variety of health care settings is more extensive. In addition, calls for the evaluation of present practices are noticeably on the increase, and a number of management issues have emerged (Whittington 2000).

An extensive review of the literature related to managing patient aggression and violence in healthcare demonstrates that there is a growing interest in this area. However, the exploration of client's and practitioners' respective views is less evident within the literature. Such work as has been done has focused on specific approaches such as seclusion, and has commonly relied on interview material (Meehan *et al* 2000). Furthermore, the staff perspective is most commonly sought, whereas tools that might examine the patient's view are rare. This, it is argued, is largely due to the complexities of the problem itself and to ethical issues relating to the psychiatric arena where much of the work is focused (Whittington 2000). It appears that a tool does not exist to examine attitudes about practice strategies employed when dealing with aggression. Therefore, a research tool was devised in order to address deficits in this area, and more specifically to survey the views of patients and staff about the broader approaches used to manage patient aggression. This became the 'Management of Aggression and Violence Attitude Scale' (MAVAS), and the subsequent testing of this tool is the focus of this paper.

Research into problems associated with aggressive and violent patients frequently employs a survey approach, and tends to use incident recording tools that examine data retrospectively, such as records, questionnaires, vignettes, and interviews (Wykes 1994). It is less common to see the use of attitude scales such as MAVAS that specifically examine views on the subject of aggression and violence in healthcare (Nolan *et al* 1999).

The survey approach to general healthcare research, on the other hand, is widely recognised. However, the survey as a method of social research has, like any other, a number of advocates and critics. De Vaus (2002), an avid

supporter of the survey approach, argues that many criticisms of this method are based on misunderstandings. Suggesting that the survey can take many forms and is not synonymous with a particular technique, he states that this approach is characterised by a structured or systematic set of data that represents information about and from at least two cases (and normally far more). Furthermore, de Vaus (2002) argues that surveys can lend themselves to both quantitative and qualitative research and may therefore warrant varying strands of analysis. As such, they are commonly seen to be pivotal in triangulated research studies. While McNeil (1990) has previously argued that a common aim of the social survey can be to generate large amounts of data, usually in statistical form and from a large number of people in a relatively short time, views today are less limited. Nelson (1999), for example, suggests that the survey can take many forms, and defines it as a research tool that can be utilised in many types of research method. Well conducted surveys, it is argued, have a unique role to play, particularly in informing us about the perceptions, views and experiences of sufficient numbers of colleagues and clients. However, to do this a survey must ask the right questions of the right people, and provide confidence in the results through sufficient response rates (Crombie 1996). This aspect will be explored more fully in a subsequent section of this paper.

### **The attitude scale**

Using questionnaires to measure the experiences, attitudes and opinions of patients and healthcare professionals is of increasing interest to researchers in nursing, and a common component of the survey design (Priest *et al* 1995). The use of attitude scales in healthcare research is a particularly popular approach and is highlighted by Mak and de Koning (1995) as one of three ways of measuring aggression, especially from a patient perspective. Howe (1995) argues that while many measurements used in nursing are quantitative in nature, some are classified as qualitative as they are more subjective and used to determine the quality of a concept or characteristic such as aggression. These qualities or concepts are not always physically measurable and thus alternative approaches to measurement, such as the use of attitude scales, have to be made. Irrespective of whether measures

are quantitative or qualitative in nature, both involve the measurement of variables, which are classified as continuous or discrete. Continuous variables can assume any value such as time, whereas discrete variables are usually whole numbers (Munro and Page 1997). Attitude scales tend to measure continuous variables, but are translated commonly as ordinal or interval data (Howe 1995). These specifically measuring views about aggression in healthcare are, as mentioned, relatively rare, although some have been used (Morrison 1993, Poster and Ryan 1993, Poster 1996). Questionnaires measuring the incidence of violence and aggression in healthcare settings are undoubtedly more common (Arnetz *et al* 1996, HSAC 1987, Nolan *et al* 1999). A lack of attitude scales incorporating views about the management of aggression reflects recent concerns that the broader management of patient aggression and violence in the healthcare setting is largely unevaluated (Turnbull and Patterson 1999). Scales such as these that examine approaches to the management of patient aggression, more specifically the use of seclusion, however, are evident (Alty 1996), although interviews are also seen to be a preferred approach (Marangos-Frost and Wells 2000, Meehan *et al* 2000).

### **The development of a new tool**

The need for the development of an attitude scale for the purposes of research into this important area became evident. As experiences and attitudes are generally multifaceted (Oppenheim 1992), a series of statements that could be incorporated into a multi-item scale, which would be appropriate to examine the concept of interest, was required (Priest *et al* 1995). Having reviewed the literature and formulated a set of research questions and hypotheses, for the purpose of a research study (Duxbury 2002), key themes were identified that would need to be integrated into the scale. Having generated an 'item pool' of statements (Streiner and Norman 1995), the format chosen to measure variables in this instance was that of a visual analogue scale. Visual analogue scales (VAS) are frequently used in the clinical setting and their popularity relies upon their ease of use (Howe 1995). These scales consist of a straight line drawn on a piece of paper, traditionally 100mm long, with either end of the line corresponding to the extremes of

possible responses. Subjects are asked to mark a point on the line which represents their views about a statement and which can then be measured and scored accordingly. While classically it is advocated that there should be a flow of statements from the general to the specific with all questions on a related topic close together (McCull 1993), this can cause a response set bias whereby respondents may try to give consistent answers rather than their true opinions. Priest *et al* (1995) suggest that the literature on ordering and sequence effects is inconclusive and while the researcher was aware of set themes, the sequencing of statements was not planned but emerged as a result of pilot work (Duxbury 2002).

### **Piloting the tool**

Pilot studies are often the preliminary trials of research that engage a small group of subjects who are either a part of or similar to those who will be recruited at a later stage (Powers and Knapp 1990). Before embarking upon a formal study to examine the staff and patient perspective on patient aggression and its subsequent management, pilot work was crucial. MAVAS was piloted on an acute ward on one mental health unit, the staff of which were not later involved in the research study proper (Duxbury 2002) as recommended by Edwards and Talbot (1999). Both staff ( $n=16$ ) and patients ( $n=20$ ) were surveyed using this tool. The former group included both qualified and unqualified staff, while the patient sample incorporated all the patients on the ward who were experiencing a range of illnesses including depressive/anxiety disorders and illnesses of a psychotic nature.

Some authors argue that pilot studies should not include people or settings related to the main study (Edwards and Talbot 1999). This, however, is something of a moot point. For example, it is suggested that the main reason for the use of a pilot study is to allow the researcher the opportunity to practice and evaluate the effectiveness of proposed data collection, irrespective of whether individuals have participated before. Problems can then be detected and changes made where necessary before the large-scale project is launched (Burns and Grove 1997). The pre-testing of instruments in this way using a pilot study can be seen as a trial run on a smaller scale and can include some data analysis and reporting (Powers and Knapp 1990). This in

turn can help to establish both the validity and reliability of the instrument and is central to the credibility of any research. This was particularly important when preparing for a research project in this instance, as a scale aimed to measure attitudes about aggression and violence management (MAVAS) from a variety of perspectives did not exist. Preliminary work to test MAVAS, therefore, had four aims:

To assess the suitability of the research tool for what it was intended to measure i.e. its validity and reliability.

To ensure that all questions were easily comprehensible to all respondents and did not contain ambiguous meanings.

To assess the feasibility of the proposed method of data collection.

To provide the researcher with experience in dealing with subjects and handling the tool devised for specific data collection (Burns and Grove 1997).

The first draft of the survey was administered to staff using a postal route and despite criticisms of this approach associated with poor completion rates, a 100 per cent response rate was achieved. This may have been the result of: concerns about rising patient aggression from staff who see this as an important area of investigation (Poster and Ryan 1993); the provision of prepaid envelopes with distributed questionnaires; or regular visits to the field site by the researcher. Respondents were asked not only to complete the visual analogue scale but also to comment on any statements to which they found it difficult to respond. This provided valuable information about potentially weak areas. The attitude scale was used to survey both staff and patients' views about the management of patient aggression and violence.

In order to ensure the best possible response rate from patients, a different approach was utilised and the scale administered to them on an individual basis. This seemed necessary for a variety of reasons. Firstly, initial attempts to survey patients were not straightforward and required a great deal of time and perseverance on the part of the researcher. It became apparent very early on that patients were an evasive population who required the investment of frequent visits to the various wards in order to establish contact and confidence. Secondly, reassurances were also required regarding anonymity and

confidentiality, both orally and in writing via patient information sheets. Furthermore, the use of patient consent forms proved invaluable. Meehan *et al* (2000) have identified the problematic nature of this area of investigation reporting that 'people with mental illness are a disempowered group and may therefore be reluctant to voice opinion and criticism about the services they receive'. Whittington (2000) has argued that researchers avoid psychiatric patient populations due to difficulties associated with access and negative views about the limited ability of patients to understand or respond to the issues under investigation. This is a growing area of concern and more research that encourages patient participation is clearly warranted (Duxbury 2002, Meehan *et al* 2000). However, despite some teething problems, once a handful of patients realised that this process was relatively painless, further patient participation was forthcoming. The researcher's ongoing visibility and experience as a mental health nurse was invaluable and patients appeared to talk freely when time was spent explaining the format of the scale and key statement terminology. Norman and Parker (1990) recognised the importance of the interviewer being well known and accepted by the respondents if rich and valid information is to emerge.

Patients were only approached on any one occasion if staff felt they were able to cope with interaction of this nature. Once it was established that patients were both willing and able to contribute to the research and following the necessary verbal explanations about the format of the scale and specific wording, patients were left alone to complete the form while the researcher waited to collect the finished product. Written consent was also obtained at this point. The co-operation of patients was very high for this pilot work and patients and staff seemed very keen to be honest and give an opinion.

Undoubtedly and importantly, when developing attitude scales such as MAVAS, one must take into consideration the problems that can be associated with this form of measurement. For instance, most attitude scales take the form of standardised statements, which refer to the attitude being measured; however, when using scales of this nature, two basic assumptions are made. Firstly, that the same statement has the same meaning for all subjects, and secondly and more fundamentally, that attitudes expressed verbally can be

quantified (Gross 2001). While the latter point is debated by some, there is general support for this approach (Bryman and Cramer 1997). In defence of the first point, piloting the scale with both staff and patients revealed one key area of weakness, which meant that for the study proper, the administration of the survey to patients needed a change in approach. Patients who responded to the pilot tool commented that there was certain terminology with which they were unfamiliar. For instance, words such as seclusion and de-escalation were either unfamiliar or ambiguous to 50 per cent of patients in the specific context of their care. This threatened the validity of a number of crucial statements. In order to address this problem within the main study patients were given a brief explanation of set terminology prior to completing the visual analogue scale and the researcher remained available for any further questions. One original statement that many subjects found to be ambiguous was omitted altogether, while another that appeared leading and really only warranted a yes/no response was subsequently judged inappropriate for inclusion in a scale format. Revisions of this nature are common. For example, Haber (1990) reduced a 32-item scale to a 24-item scale following pilot testing and factor analysis.

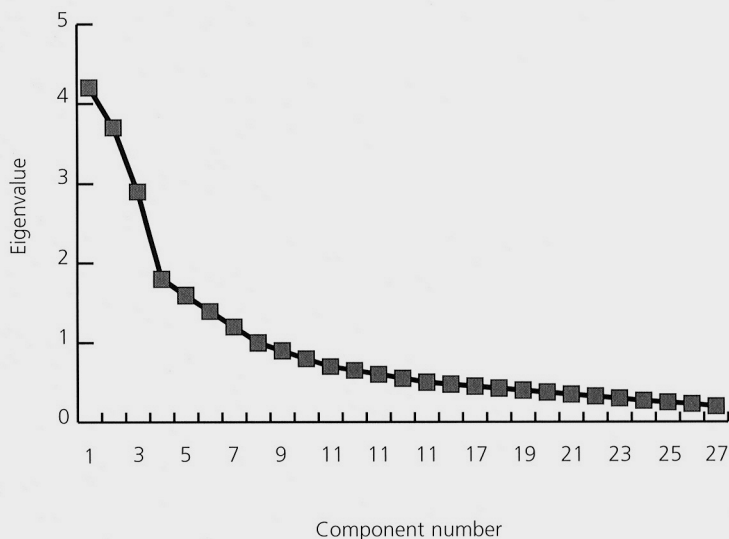
### **Validity and reliability**

Factor analysis is a method used to determine the validity of an instrument whereby themes and their relationships are identified and ratified (Burns and Grove 1997). It is also a method used to ensure the reliability of a tool in terms of its internal consistency (Watson 1995). LoBiondo-Wood and Haber (1994), for instance, define this procedure as one that gives the researcher information about the extent to which a set of items measures the same underlying construct or dimension of a construct. In other words, factor analysis assesses the degree to which the individual items on a scale truly cluster together around one or more dimensions. In this way the construct validity of a scale can be determined.

The use of the factor analysis to test the validity of the MAVAS instrument, in addition to descriptive subject feedback, gave support to the use of the 27 remaining statements, as all could be placed into one of four key themes (see Tables 1 and 2). The Scree Plot in Figure 1 demonstrates clearly four factors

at an eigenvalue of 1.8, which was used as a distinct cut off point for the demarcation of factors. Watson (1995) argues that an eigenvalue of 1.0 and above is acceptable when identifying valid factors

**Fig 1 Piloting MAVAS: A screen plot displaying 4 factors with an eigenvalue of 1.8 and above**



**Table 1: Piloting MAVAS: A key to themes identified through factor analysis**

Factor 1	Factor 2	Factor 3	Factor 4
Interactional perspective on patient aggression and violence:	External perspective on patient aggression and violence:	Internal (biomedical) perspective on patient aggression and violence:	Views about approaches to manage patient aggression and violence
Causative factors or approach.	Causative factors or approach. violence.	Causative factors or approach.	

**Table 2: Piloting MAVAS: Factor analysis.**

Statements loaded at 0.4 and above and subsequent thematic categorisation

	Theme 1 Factor loading	Theme 2 Factor loading	Theme 3 Factor loading	Theme 4 Factor loading
Q1		0.66		
Q2	0.74			
Q3	0.61			
Q4			0.62	
Q5			0.43	
Q6		0.53		
Q7			0.47	
Q8	-0.76			
Q9			0.51	
Q10			0.68	
Q11			0.55	
Q12	0.71			
Q13			0.64	
Q14				
Q15				0.59
Q16		0.71		
Q17				-0.40
Q18				
Q19				0.59
Q20				0.58
Q21				-0.46
Q22		0.46		
Q23		0.45		
Q24	0.61			
Q25			0.61	
Q26	-0.76			
Q27		0.77		

Despite the identification of a small number of flaws, which is a crucial part of pilot work, many statements were deemed to be valid and overall factor analysis was favourable with each theme loaded at 0.8 and above (Table 3), giving credibility to the finalised questionnaire. Individual statements were accepted as part of a theme when identified to have a loading of 0.4 and above, and categorised into one of four subsequently identified broad themes (Tables 1 and 2). Notably, statements 14 and 18 did not meet

**Table 3: Piloting MAVAS: Component transformation matrix demonstrating overall loading of factors at 0.8 and above**

Component	1	2	3	4
1	.995	.005	-.080	-.052
2	-.010	.788a	-.386	.480
3	.082	.337	.919	.189
4	.048	-.516	.009	.855

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a: Factor two is the weakest with a loading of just below 0.8.

**Table 4: Piloting MAVAS: Results of test-retest**

		GROUP 1	GROUP 2
GROUP 1	Pearson	1.000	.894
	Correlation		
	Sig. (2-tailed)		.000
	N	27	27
GROUP 2	Pearson	.894	1.000
	Correlation		
	Sig. (2-tailed)	.000	
	N	27	27

Correlation is significant at the 0.01 level (2-tailed).

this criteria. Subsequently they were treated with caution if commented upon. Significant item loadings have been set at as little as 0.3 in previous studies and accepted as valid when identifying themes (Watson 1995).

The reliability of MAVAS was also assessed using a test-retest, whereby respondents from the pilot sample whose questionnaires had been scored were re-administered the survey one-month after they had first completed it. Aiken (1984) describes reliability as a test's relative freedom from unsystem-

atic errors of measurement, therefore, under specified conditions the test should always yield similar results and should not vary randomly or unpredictably. The test-retest method involves the administration of the same instrument to the same subjects on two or more occasions. Scores on the repeated test are compared, and this comparison is usually expressed by Pearson's *r* correlation coefficient (LoBiondo-Wood and Haber 1994). In this instance a reliability coefficient of 0.89 using Pearson's *r* was found (Table 4). This level of score deems an instrument reliable (Cormack 1996, Parry and Watts 1996). The test-retest method is deemed to be wholly appropriate when measuring the reliability of interval data produced when using the visual analogue scale (Bryman and Cramer 1997).

## **Conclusion**

Overall, rehearsing and testing out this tool proved very valuable indeed and enhanced not only the feasibility of the study in terms of exploring practicalities, but also increased the researchers experience in the utilisation of this particular method. Greater confidence was also gained both objectively and subjectively in handling the data and the methods to be employed in the main study of the proposed research. Watson (1995) argues that statistical factor analysis of this kind provides researchers with a rigorous means of testing data collection tools in order to ensure the reliability of such instruments, while also providing a test of construct validity. This process, she suggests, is well suited to nursing assessment tools.

The fourth aim of pilot work outlined by Burns and Grove (1997) is to provide the researcher with experience in dealing with subjects and handling the tools devised for data collection. This aim was therefore met and is commonly an integral part of any overall research process. The use of factor analysis and SPSS.8 to manage a variety of data has been a particular learning curve and has provided a valuable platform on which to examine future data. The personal development of a new tool (MAVAS) that will contribute to the exploration of views about patient aggression and its management in healthcare has been especially significant.

The use of MAVAS in addition has also proved very useful as a pilot method itself in preparation for the formulation of a qualitative component,

particularly the development of a subsequent interview schedule (Duxbury 2002). Analysis of responses provided a springboard for further questions, key areas and gaps or issues that needed clarification or greater expansion. An exploratory approach of this nature is commonly advocated as a useful starting point for in-depth and clearly focused interviews (Edwards and Talbot 1999). This allows for a subject's understanding of events, and similarities and differences in the ways individuals or groups construe concepts, to be determined.

The pilot work conducted, in conclusion, has been extremely fruitful. The feasibility of the tool has been confirmed with the assistance of some minor operational refinements. Testing of the visual analogue scale for validity was successful with four key factors being identified that carried statistically and conceptually significant loadings (Table 3). In addition, the reliability of this new instrument has been demonstrated (Table 4) and the overall comprehensiveness of the scale enhanced. The key aims of the pilot, as such, have been addressed resulting in the use of MAVAS in a subsequent and published research study (Duxbury 2002).

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