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# School Staff's Experiences and Coping Related to the Challenging Behaviour of Children with Smith-Magenis Syndrome in Schools: A Q Methodological Study

Heidi Nag <sup>a,b</sup>, Klara Øverland<sup>b</sup> and Terje Nærland<sup>c,d</sup>

<sup>a</sup>Frambu Resource Centre for Rare Disorders, Sandbakkveien, Norway; <sup>b</sup>Centre for Learning Environment, University of Stavanger, Stavanger, Norway; <sup>c</sup>Department of Rare Disorders and Disabilities, Oslo University Hospital, Oslo, Norway; <sup>d</sup>KG Jebsen Centre for Psychosis Research, University of Oslo, Oslo, Norway

## ABSTRACT


The aim of this study is to use Q methodology to explore how school staff experience the behaviours of children with Smith-Magenis Syndrome (SMS) in school and how they manage working with these children. Q methodology utilises by-person factor analysis to investigate subjectivity. Fourteen school staff of students with SMS in Norway participated and sorted 40 statements according to their own experience working with a student with SMS. Two distinct viewpoints were revealed, namely, 1) Managing challenging aggressive and self-injury behaviours in school where school staff experienced a range of challenging behaviours, especially aggressive behaviours. 2) Struggling with intense non-physical challenging behaviours in school where school staff experienced behaviours such as the students being very intense, craving attention and pushing buttons. In conclusion, there must be a greater emphasis on education and advising and supporting school staff's work with the non-physical challenging behaviours aspects of teaching children with SMS, as well as a continued focus on challenging aggressive behaviours.

## KEYWORDS

Challenging behaviours; coping; Q-methodology; school staff; school; Smith-Magenis syndrome

## Introduction

Challenging behaviours are a complex concept and are used to describe several types of behaviours in kindergartens, schools, at home and in society in general. Challenging behaviours often have a negative impact on persons' learning performance and become a challenge for the learning environment (Roland, Øverland, & Byrkjedal-Sørby, 2016). Challenging behaviours include behaviours that are self-injurious behaviours, aggression, stereotyped behaviours and destruction of property (McClintock, Hall, & Oliver, 2003). Persons with intellectual disability (ID) have a heightened risk of developing challenging behaviours (Lee McIntyre, 2008). One of the disorders associated with ID and challenging behaviours is Smith-Magenis Syndrome (SMS) (A. C. Smith, Dykens, & Greenberg, 1998). Children with SMS have a complex behavioural profile that often prove challenging for school staff, and one of the most crucial elements of successful school environment is the student – teacher match (Haas-Givler & Finucane, 2014).

**CONTACT** Heidi Nag  [hel@frambu.no](mailto:hel@frambu.no)

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## *Children with SMS in School*

SMS is a rare, complex genetic syndrome caused by an interstitial deletion of chromosome 17p11.2 (A. C Smith et al., 1986) or a mutation of the retinoic acid induced 1 (RAI1) gene (Slager, Newton, Vlangos, Finucane, & Elsea, 2003). The disorder is characterised by ID, multiple congenital anomalies, obesity, neurobehavioural abnormalities and a disrupted circadian sleep-wake pattern (Williams, Zies, Mullegama, Grotewiel, & Elsea, 2012). The incidence of SMS is estimated to be 1:15,000–1:25,000 births (Greenberg et al., 1991). In Norway, Frambu Resource Centre for Rare disorders have registered approximately 40 persons with SMS.

Children and adults with SMS appear to have unique neurobehavioural problems that are especially challenging for school staff. Many of the physical and medical symptoms of SMS have a direct impact on educational functioning (Haas-Givler & Finucane, 2014). These problems include sleep disturbances, self-injurious and aggressive behaviours, stereotypes and sensory integration disorders (Martin, Wolters, & Smith, 2006; Smith et al., 1986). Autism spectrum disorders (ASD) have also been identified in almost 90% of the investigated populations with SMS (Laje et al., 2010; Martin et al., 2006). A high level of social motivation, attention-seeking behaviours and high levels of attachment to favourite people, along with an insatiable need for individualised attention from adults are also reported (Wilde, Mitchell, & Oliver, 2016).

The aforementioned characteristics may present incidence on students' outcomes and wellbeing at school. Such characteristics make that both educational and behavioural interventions for students with SMS are extremely challenging to implement for both parents and professionals' (Neira-Fresneda & Potocki, 2015) and, moreover, they affect to teacher-child relationship in a negative way (Haas-Givler, 2004). Teacher-child relationships are critical for educating students (no matter their disability status) since they do have an influence on children's adaptation to school and their social and emotional development and academic success (Pianta & Stuhlman, 2004). The teacher-child relationship in children's early years has been found to be predictive of the behaviour issues (Hamre & Pianta, 2001). Teacher's beliefs are important to identify because they relate to their priorities and decision-making in the classroom, which directly influences the children's well-being and education (Thorsen, 2009).

Bearing in mind the challenging behaviours present in students with SMS and that this influences their relationships with their teachers and teachers' expectations, there is a pressing need to investigate the current behaviours of students with SMS in schools and how the school staff perceive them and manage their work with these children. This is important for students' wellbeing and success. Notwithstanding this, if one dives into the published research, there is a lack of studies addressing this topic, with some studies using Q methodology regarding the perceptions of kindergarten teachers and school-teachers (Øverland, Thorsen, & Størksen, 2012; Subba, Bru, & Thorsen, 2017). To fill the gap concerning SMS students and teachers' perceptions and coping strategies when teaching these students, the goal of this work was to explore the challenging behaviours that students with SMS display in school and explore how school staff experience and manage these behaviours.

## Methods

Q methodology was developed and introduced by William Stephenson in 1935 (Stephenson, 1935). Q methodology is both a philosophy of science, a theoretical framework, a research technique for collecting data and an analysis method for scientific research of subjectivity (Brown & Good, 2010). There are commonly five steps used in Q studies (Van Exel & de Graaf, 2005): (a) definition of concourse, (b) developing the Q set, (c) defining the participants, (d) the Q sorting and analysis and (e) interpretation.

### Definition of Concourse

The concourse is defined as a collection of all possible statements of the subject in concern (Van Exel & de Graaf, 2005). The concourse could come from different sources, such as photos, music, interviews, conversations, social media, magazines or scientific papers (Brown, 1980). In this Q study open-ended questionnaire and standardised questionnaires (Developmental Behaviour Checklist and Vineland Adaptive Behaviour Scales), completed by the parents of persons with SMS as part of a larger study, and published sources (Haas-Givler & Finucane, 2014; Neira-Fresneda & Potocki, 2015) were used to identify the concourse.

### Developing the Q Set

The Q set consist of the statements that are being sorted. Approximately 150 statements were collected. To create a balanced and structured set of statements, Fisher's balanced block design was used to structure and select representative statements from the concourse (Fisher, 1960; Stephenson, 1953). Fisher's balanced block design is a two-dimensional model with effect on side and levels on the other side (Fisher, 1960). A  $2 \times 2$  block design with two main dimensions (extrovert versus introvert behaviours and behaviours occurring alone or together with other students) were used to ensure coverage of a wide range of statements. An additional statements category of 'school staff experiences' was added. Also, a 'various' category was added, including statements not fitting in any of the other categories such as 'the student is good at technical things' and 'the student can be experienced as very intense' (see Table 1).

The statements were reduced to 40 statements by grouping them in similar groups. From the statements that addressed the same issue, one statement was selected, or statements were combined. The statements were printed on separate cards and numbered arbitrarily, and the generated statements are known as the Q set (Coogan & Herrington, 2011; Van Exel & de Graaf, 2005).

**Table 1.** Fisher balanced block design, N = 40.

	Extrovert	Introvert	School Staff Experiences
Alone	6 statements	6 statements	12 statements
With other students	6 statements	6 statements	
Various	4 statements		

### **Participants (P Set)**

The P set refers to the group of participants in the study. In this study, the P set consist of school staff currently working with a student with SMS in grade school. Principals of 10 schools (we only know of approximately 10 students in grade school in Norway) were contacted by mail and were asked to distribute the Q sort to three of their staff members who work with students with SMS. Fourteen (47%) participants completed the Q sort and returned them. The participants' information is indicated in [Table 2](#). Three of the participants worked in special education schools, the rest (eleven) worked in regular education settings. Six participants were special education teachers, the rest did not have any special education training. Six of the participants had worked with the student with SMS for 1–2 years, five had worked with the student with SMS 4–5 years, and one had worked with the student for 7 years. Two participants did not indicate how long they had worked with the student with SMS. No one had worked with other students with SMS before.

### **Q Sorting**

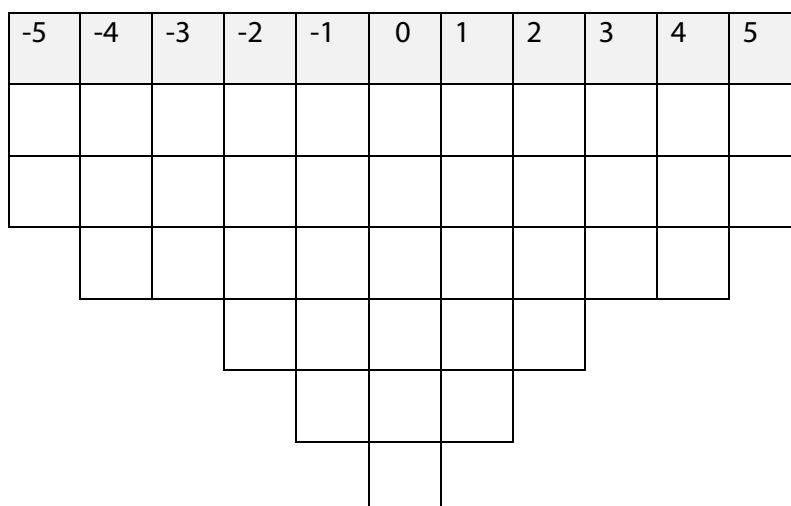
The participants were instructed to sort the Q set of statements into a grid from most like to most unlike my experiences regarding the students with SMS. In this study, a distribution grid with 11 categories (from +5 to –5) was created to fit 40 statements cards ([Figure 1](#)). Because the students with SMS are spread geographically all over Norway and face-to-face Q sorts would be very ineffective, the Q sorts were therefore sent in the mail. Studies have shown that Q sort sent in the mail or performed using a computer has no difference in reliability or validity than interview-based (face-to-face) Q sorts (Reber, Kaufman, & Cropp, 2000; Van Tubergen & Olins, 1979). After the sorts, the participants were instructed to write down the numbers of the statements in the correct place in the grid. They were also instructed to provide a written rationale for the placement of the two statements placed on the far right (+5) and far left (–5) sides of the grid.

### **Data Analysis and Interpretation**

The completed Q sort was correlated with the other participants' Q sorts (Coogan & Herrington, 2011; McKeown & Thomas, 1988; Schmolck, 2002). All the Q sorts were plotted

**Table 2.** School staff characteristics.

Staff Code
1 – Special Education Teacher Female student
2 – Teacher Assistant Male student
3 – Unknown profession Female student
4 – Special Education Teacher Male student
5 – Special Education Teacher Female student
6 – Teacher Female student
7 – Teacher Assistant Female student
8 – Teacher Assistant Male student
9 – Special Education Teacher Male student
10 – Special Education Teacher Male student
11 – Unknown profession Male student
12 – Other school staff Male student
13 – Other school staff Male student
14 – Special Education Teacher Female student



-5	-4	-3	-2	-1	0	1	2	3	4	5

**Figure 1.** Grid used during Q sorting.

and analysed using one of the available computer programs, the PQ Method Program (Schmolck, 2002) that utilised a by-person factor analysis. In the analysis process, the correlation of all Q sorts was calculated. Then, the degree, or level of dissimilarity and similarity of points between the individual sorters were calculated. After that, a by-person-factor analysis was performed to examine how many groupings of similar Q sorts there were. People with similar views (sorts) shared the same factor (Van Exel & de Graaf, 2005). In Q methodology, the statements are utilised to define a factor, a theoretical factor is constructed by a weighted average of the factor's score for the Q sort associated with this factor (Brown, 1980; Wheeler & Montgomery, 2009). Factor scores are essentially weighted z-scores for each statement in the Q set; these scores can be converted into an array of scores (factor array) that correspond to the plus 5 to minus 5 values in the original Q sort continuum (McKeown & Thomas, 1988). The factors were interpreted based on the characteristic statements of each factor, as well as distinguishing and consensus statements. In addition, written statements regarding why the participants placed the statements on either end of the scale were used to enlighten the results. The statements and factor scores are presented in Table 3.

### **Ethical Considerations**

This study was part of a larger study regarding SMS. This study was approved by the Norwegian Ethical Committee (2015/1026). The participants signed an informed consent form.

### **Results**

A Varimax rotation revealed two distinct viewpoints regarding school staff's experiences with challenging behaviours in students with SMS. Two factors or viewpoints were chosen

**Table 3.** Statements and factor scores, including consensus and distinguishing statements.

No	Statements	Factor arrays	
		1	2
1*	<i>The student has a mature emotional development (behaves similar to other people his/her own age).</i>	-4	-5
2	The student often sits quietly by him/herself.	0	-4
3*	<i>The student has a lot of creativity.</i>	0	0
4*	<i>The student has good humour.</i>	3	3
5*	<i>The student is rarely sleepy and tired during the day.</i>	-2	-2
6	The student self-injures by hitting, scratching, or biting.	4	1
7*	<i>The student self-stimulates or has repetitive behaviour (spins or pushes on things repeatedly or asks the same questions repeatedly).</i>	4	3
8*	<i>The student is polite and social.</i>	3	2
9	Sometimes, I am really tired of my job.	-4	2
10*	<i>The student is good at technical things.</i>	1	2
11*	<i>The student has mastered 'conquer and divide' techniques.</i>	1	1
12	<i>The student does not care for other people (students or adults).</i>	-2	-1
13*	<i>I think it is just ok to be spat on.</i>	-3	-1
14	I think it is demanding to be alone with the student.	-1	4
15*	<i>The student has good impulse control.</i>	-3	-4
16*	<i>The student does not help other people.</i>	0	0
17	The student has bad and insulting language.	0	-2
18	The student works well with other students of the same age.	0	-2
19	I have not experienced the student getting angry at school.	-5	-1
20	The student can be experienced as very intense.	2	5
21*	<i>The student knows which 'buttons' to push.</i>	3	4
22*	<i>The student is rarely afraid in new situations and when meeting new people.</i>	0	0
23	I never get provoked by the student.	-1	2
24*	<i>I experience that it is difficult to divert the student's attention to something else.</i>	1	1
25*	<i>The student has a stable mood.</i>	-2	-3
26	The student works with and concentrates on academic work over time.	1	-4
27	The student never gets angry with screaming, kicking and hitting.	-5	-3
28	The student cooperates well with other students in group activities.	-1	-3
29	I am not sure what to do in difficult situations.	-2	0
30	Working with the student is challenging in a good way.	5	1
31	The student is not preoccupied with adults.	-3	-5
32	I know what to do when the student self-injures.	2	-1
33*	<i>I think it is difficult to watch when the student self-injures.</i>	1	1
34	<i>The student never destroys things at school.</i>	-1	-2
35	<i>The student has good long-term memory.</i>	2	0
36*	<i>It is positive to work with the student.</i>	5	4
37*	<i>The student demands constant attention.</i>	2	5
38*	<i>I know what to do if the student displays challenging behaviour.</i>	4	3
39	I think it is scary when the student gets angry or loses control.	-4	0
40*	<i>I think it is easy to explain to the other teachers about the student and how to handle situations.</i>	-1	-1

Statements in italics are consensus statements non-significant at  $p < 0.01$ , and statements also flagged with an \* are also non-significant at  $p < 0.05$ . (statements not in italic are distinguishing statements (variance across factor z-scores)).

based on both a visual inspection of the scree plot and the eigenvalues. The two viewpoints were labelled 1) Managing challenging aggressive and self-injury behaviours in school and 2) Struggling with intense non-physical challenging behaviours in school. These two factors extracted a 42% and 18% variance, respectively. Ten participants loaded on factor 1, and four participants loaded on factor 2 (Table 4). Five of the six special education teachers loaded on factor 1. The four participants loading on factor 2 had all different levels of education and work positions in the schools, but they all worked in regular education settings. There were no differences in which factor they loaded on depending on the gender of the student with SMS.

**Table 4.** Factor loadings with an X indicating a defining Q sort.

Staff Code	Factor 1	Factor 2
1SETF	0.2673	0.5504X
5SETF	0.7113X	0.3926
4SETM	0.7095X	0.2106
3UF	0.4205	0.7488X
2TAM	0.8568X	0.2148
6TF	0.6856X	0.4224
7TAF	0.2871	0.6258X
8TAM	0.8100X	0.2290
9SETM	0.7064X	0.1447
10SETM	0.8043X	0.2794
11UM	0.8387X	0.2205
12OM	-0.0207	0.7438X
13OM	0.6232X	0.3637
14SETF	0.6788X	0.1271

SET: Special Education Teacher, T: Teacher, TA: Teacher Assistant, O: Other school education, U: Unknown profession, F: Female student with SMS, M: Male student with SMS

**Table 5.** Characteristic statements and scores for the two viewpoints.

	Factor 1: Managing challenging aggressive and self-injury behaviours in school	Factor 2: Struggling with intense non-physical challenging behaviours
Positive side of the grid	30. Working with the student is challenging in a good way (+5)* 36. It is positive to work with the student (+5) 6. The student self-injures by hitting, scratching, or biting (+4)* 7. The student self-stimulates or has repetitive behaviour (spins or pushes on things repeatedly or asks the same questions repeatedly) (+4) 38. I know what to do if the student displays challenging behaviour (+4)* 21. The student know which 'buttons' to push (+3) 4. The student has good humour (+3) 8. The student is polite and social (+3)	20. The student can be experienced as very intense (+5) 37. The student demands constant attention (+5) 21. The student knows which 'buttons' to push (+4) 36. It is positive to work with the student (+4) 14. I think it is demanding to be alone with the student (+4) 7. The student self-stimulates or has repetitive behaviour (spins or pushes on things repeatedly or asks the same questions repeatedly) (+3) 4. The student has good humour (+3) 38. I know what to do if the student displays challenging behaviour (+3)
Negative side of the grid	13. I think it is just ok to be spat on (-3) 15. The student has good impulse control (-3) 31. The student is not preoccupied with adults (-3)* 1. The student has a mature emotional development (behaves similar to other people his/her own age) (-4) 39. I think it is scary when the student gets angry or loses control (-4)* 9. Sometimes, I am really tired of my job (-4)* 19. I have not experienced the student getting angry at school (-5)* 27. The student never gets angry with screaming, kicking and hitting (-5)*	25. The student has a stable mood (-3) 27. The student never gets angry with screaming, kicking and hitting (-3) 28. The student cooperates well with other students in group activities (-3) 26. The student works with and concentrates on academic work over time (-4) 2. The student often sits quietly by him/herself (-4) 15. The student has good impulse control (-4) 1. The student has a mature emotional development (behaves similar to other people his/her own age) (-5) 31. The student is not preoccupied with adults (-5)

Asterisk (\*) indicates significant at  $p < .01$ , for the distinguishing statements for factor 1.

Table 5 provides an overview of the statements that have been ranked high or low on the two factors.



### Consensus Statements

Consensus statements do not distinguish between any of the identified factors (Van Exel & de Graaf, 2005). In this study, there was consensus between the two factors on more than half of the statements (23 statements). The consensus statements are presented in Table 3. Most of the consensus statements were regarding how the school staff experienced the students' behaviours, not the school staff's coping and emotions regarding the behaviours. Regarding the staff's emotions and coping, they agreed that it is positive to work with these students (Table 3, statement 36, +5 and +4), and they know what to do when challenging behaviours are displayed (Table 3, statement 38, +4 and +3). In both factors, the staff think it is somewhat difficult to explain to other teachers about the student and how to handle their behaviours (Table 3, statement 40, -1 and -1). One participant explained why they placed statement 40 (Table 3), I think it is easy to explain to the other teachers about the student and how to handle situations, on the least like (-5) in a good way:

To get insight into the challenges regarding this student you must have known him for a while; therefore, it takes time before you experience the need of the adaptations. And, therefore, it is difficult to explain well some of the importance of following the rules and routines that we have with this student.

### Interpretation of Factors

*Factor 1: Managing challenging aggressive and self-injury behaviours in school.* Ten school staff sorts defined the first factor. The main aspects of this factor are that the school staff experience a range of challenging behaviours, especially aggressive behaviour, as well as acting out behaviours, and that the staff are handling these behaviours and have a positive attitude towards both their work and the students. One of the participants described why they put statement 27 (Table 3), the student never gets angry with screaming, kicking and hitting, on least like (-5) this way:

When he gets angry, he can boycott, destroy for others, scream, yell, lay down on the ground, bite, spit, scratch, kick and hit. He is doing this towards himself, but mostly towards us adults and very rarely towards other students.

The view represented by this factor was that the staff experience that the students get angry at school, they hit, scream, kick and have self-injurious behaviour, but the school staff still experienced it as positive and challenging in a good way to work with these students. One of the participants put the following statement, working with this student is challenging in a good way (Table 3, statement 30) on most like (+5) and explained the choice of the most positive statement as follows:

A lot of joy, laughter and care that he and his parents are sharing. Instructive and demanding in a good way.

The staff who hold this view experience numerous acting out and challenging behaviours but are managing it and know what to do. The staff experience a balance of challenging behaviours but also see the positive traits in the student, such as humour, politeness, and social and caring behaviour. Another participant put statement 40 (Table 3), I think it is easy to explain to the other teachers about the student and how to handle situations, on the least like (-5) and explained it as follows:

The student is complex. It takes a long time to get to know him. It takes a long time before he shows his true self.

The school staff who hold this view are not tired of their work (Table 3, statement 9, -4) although they are working with students who are very preoccupied with adults (Table 3, statement 31, -3 (negative stated)) and have a lack of impulse control (Table 3, statement 15, -3 (negative stated)).

### ***Factor 2: Struggling with Intense Non-physical Challenging Behaviour***

The second factor identified was defined by four the school staff (n = 4). The main view of this factor was that the school staff experienced that the students are challenging to work with especially because of the intensity of their behaviour, and the staff are positive towards their work and the students. However, the staff experience demanding situations especially if they are alone with the students. The view of this factor was that the staff experienced that these students have more non-physical behaviour problems such as being very intense, craving attention and pushing buttons. One of the participants who holds this view explained their placement of statements 20 (Table 3), the student can be experienced as very intense, and 19 (Table 3), I have not experienced the student getting angry at school, in the most like (+5) this way:

I experience this student as very intense, talks all the time and picks on everything if he is allowed to.

I have not experienced that the student gets angry. I have seen him upset and frustrated, but not angry.

The staff holding this view do not experience the acting out behaviour, such as kicking, screaming and self-injurious behaviour, as problematic as the more non-physical behaviour. In this view, they were positive towards working with these students but also found it demanding and struggle with being alone with the student with SMS. In this view, the staff experienced the students as emotionally immature, having a lack of impulse control, lacking the ability to focus on schoolwork over time and having trouble sitting quietly by themselves. Another participant described why choosing statement 14 (Table 3), I think it is demanding to be alone with the student, in the most like (+5) this way:

The student demands a lot of one person. You always need to be prepared for a mood swing. It is very important to have more than one person working with this student. You will need a break in between the battles.

In this view, the participants also described that the students with SMS were more drawn towards adults than other students. As one participant said regarding why they chose statement 31 (Table 3), the student is not preoccupied with adults, for the least like (-5):

The student is very preoccupied with adults and contact with the adults. It often gets complicated with other children. They are more unpredictable.

The staff who hold this view also agreed with the statements that they are sometimes tired of their job (Table 3, statement 9, +2) and that these students sometimes provoke them (Table 3, statement 23, +2).

### **Distinguishing Statements**

A statement is distinguishing when a statement's score goes beyond the difference score. The difference score is the degree of difference between a statement's score on any two factors that is required for it to be statistically significant (Van Exel & de Graaf, 2005). The distinguishing statements are presented in Table 3. How the staff handled the behaviours differs: The participants who held the view of factor 2 were more scared when the student lost control (Table 3, statement 39, -4 and 0), and the participants who held the view of factor 1 believed it was more challenging in a good way working with these students (Table 3, statement 30, 5 and 1). There were also differences in how demanding they experienced working alone with these students (Table 3, statement 14, -1 and 4) and if they did get tired of their job sometimes (Table 3, statement 9, -4 and 2). The two factors also had a different view of the acting out behaviours (Table 3, statement 27, -5 and -3) and the self-injury behaviours (Table 3, statement 6, 4 and 1).

### **Discussion**

Classroom disruption and student behaviours have become one of the biggest issues in classrooms today (Alter, Walker, & Landers, 2013; Bru, 2009). One of the main symptoms of SMS is challenging behaviours (Poisson et al., 2015). As far as we know, no one have specifically researched the challenging behaviours of students with SMS in schools. The aim of this study was to explore challenging behaviours in students with SMS and to explore how school staff experienced and managed these challenging behaviours.

The main finding in this study was the two distinct viewpoints that were discovered in this analysis: 'Managing challenging aggressive and self-injury behaviours' and 'Struggling with intense non-physical challenging behaviours'. The two viewpoints reveal distinct differences in both how the school staff experience the behaviours that the students display at school and how the school staff are handling this behaviour. These findings accord with information presented in 'On the road to success with SMS' (Haas-Givler & Finucane, 2014), regarding the type of behaviours the students display in schools. It seems that it is the more intense non-physical behaviours that are more demanding for the school staff to handle. Investigating the disagreement patterns, it seems as if the staff experience that not all the students display the same type of behaviour, at least not in school. The specific intense non-physical behaviours include various forms of challenging behaviours, such as pushing buttons, picking on things, being demanding, lack of concentration, lack of cooperation and lack of ability to work by themselves and talking all the time. In contrast, in viewpoint one, the staff experience behaviours that are described as more acting out and self-injury behaviours. Both types of behaviours have been described in the literature (Poisson et al., 2015; Wilde et al., 2016), but the behaviours experienced in viewpoint one are more commonly described regarding SMS (Poisson et al., 2015; Wilde et al., 2016). In earlier international investigations (PISA 2000, 2003) (OECD, 2000, 2003). Norway was out on the top on the lists regarding challenging behaviours in school. This has changed in a positive direction in the last two PISA investigations, and Norway have similar results as the other Nordica countries and OECD countries regarding challenging behaviours in school (PISA 2012, 2015) (OECD, 2012, 2016). In a report regarding violence in the schools in Oslo, there are noted an increase of violence both towards schools staff

and other students (Utdanningsetaten Oslo kommune, 2018). Norway also comes out on the top on list of how much resources are spent on schools (Eriksen, 2008). This indicates that it is not necessarily a lack of resources, but maybe a lack of knowledge and focus. Some studies have shown that teachers perceive what is defined as mild behaviour challenges, such as off-task behaviour and verbal disruptions, as the most frequent and problematic in schools (Alter et al., 2013; Rosenberg & Jackman, 2003). It is natural to think that working with students who self-injure or who are physically acting out, is one of the most challenging tasks in schools, but both the study from Alter et al. (2013) and our results indicate the opposite. There have been a focus on the use of restrictive practises in schools in Norway in the last years (Højmark, 2016). There are no laws or regulations regulating the use of restrictive practises in schools, which means they are not allowed to be used in schools. School leadership have had a focus on other strategies, than restrictive practises, to handle challenging behaviours. This increased focus on challenging behaviours and alternative interventions may have led to more support for school staff working with students with aggressive and acting out behaviours (Hansen & Østvold, 2015). The results in this study regarding children with SMS in schools may also reflect that the schools may be advised in how to handle aggression, but since the non-physical challenges for school staff have not been addressed before, there may be a lack of focus on managing students' non-physical challenging behaviours. Another point is looking at the background of the participants. Most of the participants with a special education background loaded on viewpoint 1, while those participants who loaded on viewpoint 2 had different backgrounds. The 'relationship between having special education background and viewpoint 1' is an interesting finding but, due to the lack of studies in this topic, it is difficult to generate discussion on this finding. However, one could hypothesise that, perhaps, school staff with special education training does have a better prerequisite to handle the level of challenging behaviours related to factor 1 (i.e. aggressive and self-injury behaviours). In this regard, there have been several reports the last years in Norway concerning the lack of formal special education competence in school staff providing support to students with special educational needs (Barneombudet, 2017; Nordahl & et. al, 2018). One the other hand, one study found that special education certification programmes were more like to have addressed behaviour management than general education certification programmes (Flower, McKenna, & Haring, 2017). However, this hypothesis needs to be confirmed by further research involving more participants than those included in our work'.

In addition, there were distinct patterns of agreement and disagreement. The consensus statements revealed that most of the school staff in this study experience it as positive to work with students with SMS and that they experience these students as polite and having good humour. It does not seem as if the challenging behaviours have a negative impact on the teacher-child relationship, as suggested by Haas-Givler (2014) and proposed in the work by Pianta and Hamre (2001). Although the staff experience considerable challenging behaviour, they seem to have positive relationships with the students. They also agree that they experience these students as having challenges with their emotional development and impulse control. These findings are also similar to the results found in earlier research (Haas-Givler & Finucane, 2014; Poisson et al., 2015). Pianta has studied the effect of teacher-student relationship on both academic and social gain in the classroom (Pianta & Hamre, 2009; Pianta & Stuhlman, 2004). There is not necessarily

a clear association between the child's development and the teacher–child relationship (Pianta & Stuhlman, 2004), but the fact that it seems to be a positive relationship between students with SMS and school staff could be something that influence the development of both academic achievement and social gain in the school setting. In this study, we found that the school staff seemed to have a positive relationship with the students with SMS, despite the students' challenging behaviour. It is interesting to find a description of such difficult behaviours and positive attitudes towards the students in the same study. Studies have found that children's misbehaving can influence and result in less positive interactions with their teachers (Patterson & Fisher, 2002). Children's ability to form a strong relationship with their teachers is an indicator of positive school adjustment (Hamre & Pianta, 2005). One key component in the positive view of these students may be that the school staff also recognise that these students have some positive traits, such as politeness and humour, which in both viewpoints were placed on the agreement side of the grid. The results of this study may also indicate that challenging behaviours demand extra attention and a close monitoring of the children with SMS so that the children and teachers develop a close relationship, which was identified as crucial by Pianta and Hamre (2005).

In both viewpoints, it appears that it was difficult to inform other school staff about the student and how to handle the challenging behaviour. One participant actually put this statement on least like (–5) explaining that since students with SMS often take some time before they display the challenging behaviour, it is difficult to justify the strict adherence to the planned rules regarding the student. This finding indicates that there may be some challenges in how the school organises and supports staff that work in such challenging environments. Oliver, Woodcock, and Adams (2010), argue that understanding of an individual can be enhanced when we can trace the individual differences back to a specific genetic disorder. Therefore, providing information to school staff regarding the disorder and how it turns to specific behaviours when the children interact with specific environmental demands at school, may be an important step in supporting the staff working directly with the student with SMS'.

Several of the statements regarded the school staff's experiences of handling the challenging behaviour. It was especially three statements that differed between the viewpoints; in viewpoint two, the staff scored slightly higher than viewpoint one on 'being tired of their work' and 'experiencing it as demanding to be alone with the student' and scored lower than viewpoint on 'thinking that it is challenging in a good way to work with the student'. Both viewpoints scored quite similar on the statements regarding how to handle the challenging behaviours and knowing what to do in situations of both acting out behaviours and self-injury and that it is positive to work with these students. It seems as if the school staff are experiencing a challenging work day with these students, but they are coping well with it in general. We observe that in viewpoint two, the school staff express more issues with coping, probably based on the intensity and type of the behaviour. It seems as if the non-physical and intense behaviours are more challenging to cope with than the acting out behaviour. Coping is important in how we manage stressful situations (Drageset, 2014; Lazarus & Folkman, 1984). The school staff requires information and knowledge of how to handle the different types of challenging behaviours in students with SMS. By adding these, their perceptions about these students may change, as well as their self-efficacy when

addressing the challenging behaviours and the needs of their students, thus giving teachers more tools for a more effective coping process'.

This is, as far as I know, the first Q studies performed regarding SMS. It seems like a useful method in exploring school staffs' viewpoints in managing challenging behaviours in the schools. Some of the results may have been difficult to reveal in an interview setting. This study explores school staff's views and is limited to the participants who performed the Q sort. The findings cannot be generalised to all staff who work with SMS children, but the study provides insight into some views that may be present in a larger study. There may be a limitation in using Q sorts sent in the mail to the participants, and not performing the sort face-to-face. In a face-to-face setting, misunderstanding may be solved and body language may also be studied. However, studies have shown that Q sort sent in the mail or performed using a computer has no difference in reliability or validity than interview-based (face-to-face) Q sorts (Reber et al., 2000; Van Tubergen & Olins, 1979).

In this study, we have established that students with SMS have a variety of challenging behaviours in school. It specifically looks like students with intense non-physical challenging behaviours are more of a challenge to work with probably due to lack of knowledge how to deal with this type of challenging behaviours. More specific information regarding the type and intensity of challenging behaviours are needed for school staff and others working with persons with SMS. And more research regarding interventions and how to handle these behaviours are also needed. The lack of knowledge may be risk factors for stress (Lazarus & Folkman, 1984). It also looks like special education trained teachers are better prepared to handle the challenging behaviours in school, but due to this small sample this needs to be further investigated. Further research is also needed in how to support school staff working with students with SMS.

The conclusion of this study is that there must be a greater emphasis on education and advising and supporting school staff's work with the non-physical challenging behaviours aspects of teaching children with SMS, as well as a continued focus on challenging aggressive behaviour.

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## ORCID

Heidi Nag  <http://orcid.org/0000-0003-3556-4597>

## References

- Alter, P., Walker, J. N., & Landers, E. (2013). Teachers' perceptions of students' challenging behavior and the impact of teacher demographics. *Education & Treatment of Children, 36*(4), 51–69.
- Barneombudet. (2017). *Uten mål og mening. Barneombudets fagrapport 2017. Elever med Spesialundervisning i grunnskolen*. Oslo, Norway.
- Brown, S. R. (1980). *Political subjectivity: Applications of Q methodology in political science*. New Haven, CT: Yale University Press.
- Brown, S. R., & Good, J. M. M. (2010). Q methodology. In N. J. Salkind (Ed.), *Encyclopedia of research design* (pp. 724–702). Thousand Oaks, CA: Sage.
- Bru, E. (2009). Academic outcomes in school classes with markedly disruptive pupils. *Social Psychology of Education, 12*(4), 461–479.
- Coogan, J., & Herrington, N. (2011). Q methodology: An overview. *Research in Secondary Teacher Education, 1*(2), 24–28.
- Drageset, S. (2014). Mestrings. In G. Haugan & T. Rannestad (Eds.), *Helsefremming i kommunehelsetjenesten* (pp. 85–98) Oslo: Cappelen Damm Akademisk.
- Eriksen, N. (2008). How to tackle behavioural problems in Norwegian schools? *Journal of the Norwegian Psychological Association, 45*(7), 849–861.
- Fisher, R. A. (1960). *The design of experiments*. Oxford, England: Oliver & Boyd.
- Flower, A., McKenna, J. W., & Haring, C. D. (2017). Behavior and classroom management: Are teacher preparation programs really preparing our teachers? *Preventing School Failure: Alternative Education for Children and Youth, 61*(2), 163–169.
- Greenberg, F., Guzzetta, V., Montes de Oca-luna, R., Magenis, R. E., Smith, A. C., Richter, S. F., ... Lupski, J. R. (1991). Molecular analysis of the Smith-Magenis syndrome: A possible contiguous-gene syndrome associated with del(17)(p11.2). *American Journal of Human Genetics, 49*(6), 1207–1218. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1686451/pdf/ajhg00083-0076.pdf>
- Haas-Givler, B. (2004). Educational implications & behavioral concerns of SMS. *Spectrum, 7*(3). Retrieved from [www.prisms.org](http://www.prisms.org)
- Haas-Givler, B., & Finucane, B. M. (2014). *On the road to success with SMS. E-book*. Sterling, VA: PRISMS.
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638.
- Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*(5), 949–967.
- Hansen, H. I., & Østvold, K. (2015, November 23). Barneskole bruker ulovlig tvang-fortvilser over manglende hjelp. NRK. Retrieved from <https://www.nrk.no>
- Højmark, T. B. (2016). Fylkesmannen bekrefter: – Elever blir holdt fast og krenket på skolen. *Solbladet*. Retrieved from <https://solbladet.no>
- Laje, G., Morse, R., Richter, W., Ball, J., Pao, M., & Smith, A. C. M. (2010). Autism spectrum features in Smith-Magenis syndrome. *American Journal of Medical Genetics. Part C, Seminars in Medical Genetics, 154C*(4), 456–462. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2967410/pdf/nihms236940.pdf>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer publishing company.
- Lee McIntyre, L. (2008). Adapting Webster-Stratton's incredible years parent training for children with developmental delay: Findings from a treatment group only study. *Journal of Intellectual Disability Research, 52*(12), 1176–1192.
- Martin, S. C., Wolters, P. L., & Smith, A. C. M. (2006). Adaptive and maladaptive behavior in children with Smith-Magenis syndrome. *Journal of Autism and Developmental Disorders, 36*(4), 541–552.
- McClintock, K., Hall, S., & Oliver, C. (2003). Risk markers associated with challenging behaviours in people with developmental disabilities: A meta-analytic study. *Journal of Intellectual Disability Research, 47*, 405–416.

- McKeown, B. F., & Thomas, D. B. (1988). *Q methodology*. Newbury Park, CA: Sage.
- Neira-Fresneda, J., & Potocki, L. (2015). Neurodevelopmental disorders associated with abnormal gene dosage: Smith-Magenis and Potocki-Lupski syndromes. *Journal of Pediatric Genetics*, 4(3), 159–167.
- Nordahl, T., Persson, B., Dyssegaard, C. B., Hennestad, B. W., Wang, M. V., Martinsen, J., Vold, E. K., Paulsrud, P. and Johnsen, T. (2018). *Inkluderende fellesskap for barn og unge. Ekspertgruppen for barn og unge med behov for særskilt tilrettelegging*. Bergen: Fagbokforlaget.
- OECD. (2000). *Knowledge and skills for life. First results from PISA 2000*. Paris. <http://www.oecd.org/education/school/programme-for-international-student-assessment-pisa/33691620.pdf>
- OECD. (2003). *Learning for Tomorrow's World. First results from PISA 2003*. Paris. <https://www.oecd.org/education/school/programme-for-international-student-assessment-pisa/34002216.pdf>
- OECD. (2012). *PISA 2012 results: What makes schools successful (volume iv). Resources, policies and practices*. Paris. <https://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-IV.pdf>
- OECD. (2016). *PISA 2015 results (Volume I): Excellence and equity in education, PISA*. Paris. [https://read.oecd-ilibrary.org/education/pisa-2015-results-volume-i\\_9789264266490-en#page1](https://read.oecd-ilibrary.org/education/pisa-2015-results-volume-i_9789264266490-en#page1)
- Oliver, C., Woodcock, K., & Adams, D. (2010). The importance of aetiology of intellectual disability. In G. Grant, P. Ramcharan, M. Flynn, & M. Richardson (Eds.), *Learning disability: A life cycle approach to valuing people* (pp. 135–146). London: Open University Press/Wiley.
- Øverland, K., Thorsen, A. A., & Størksen, I. (2012). The beliefs of teachers and daycare staff regarding children of divorce: A Q methodological study. *Teaching and Teacher Education*, 28(3), 312–323.
- Patterson, G. R., & Fisher, P. A. (2002). Recent developments in our understanding of parenting: Bidirectional effects, causal models, and the search for parsimony. In M. H. Bornstein (Ed.), *Handbook of parenting: Practical issues in parenting* (pp. 59–88). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Pianta, R. C., & Hamre, B. K. (2009). Classroom processes and positive youth development: Conceptualizing, measuring, and improving the capacity of interactions between teachers and students. *New Directions for Youth Development*, 2009(121), 33–46.
- Pianta, R. C., & Stuhlman, M. W. (2004). Teacher-child relationships and children's Success in the First Years of School. *School Psychology Review*, 33(3), 444–458.
- Poisson, A., Nicolas, A., Cochat, P., Sanlaville, D., Rigard, C., de Leersnyder, H., ... Demily, C. (2015). Behavioral disturbance and treatment strategies in Smith-Magenis syndrome. *Orphanet Journal of Rare Diseases*, 10(1), 111–120.
- Reber, B. H., Kaufman, S. E., & Cropp, F. (2000). Assessing Q-assessor: A validation study of computer based q sorts versus paper sorts. *Operant Subjectivity*, 23(4), 192–209.
- Roland, P., Øverland, K., & Byrkjedal-Sørby, L. J. (2016). Alvorlige atferdsvansker - forskning og tiltak relatert til skolekonteksten. In E. Bru, E. Cosmovici Idsøe, & K. Øverland (Eds.), *Psykisk helse i skolen* (pp. 156–171). Oslo: Universitetsforlaget.
- Rosenberg, M. S., & Jackman, L. A. (2003). Development, Implementation, and sustainability of comprehensive school-wide behavior management systems. *Intervention in School and Clinic*, 39(1), 10–21. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=10598976&scope=site>
- Scholck, P., (Producer). (2002, January 11). PQMethod. Retrieved from <https://qmethod.org/resources/software/>
- Slager, R. E., Newton, T. L., Vlangos, C. N., Finucane, B., & Elsea, S. H. (2003). Mutations in RAI1 associated with Smith-Magenis syndrome. *Nature Genetics*, 33(4), 466–468. Retrieved from <http://www.nature.com/ng/journal/v33/n4/pdf/ng1126.pdf>
- Smith, A. C., Dykens, E., & Greenberg, F. (1998). Behavioral phenotype of Smith-Magenis syndrome (del 17p11.2). *American Journal of Medical Genetics*, 81(2), 179–185.
- Smith, A. C., McGavran, L., Robinson, J., Waldstein, G., Macfarlane, J., Zonona, J., ... Magenis, E. (1986). Interstitial deletion of (17)(p11.2p11.2) in nine patients. *American Journal of Medical Genetics*, 24(3), 393–414.
- Stephenson, W. (1935). Correlating persons instead of tests. *Character & Personality; A Quarterly for Psychodiagnostic & Allied Studies*, 4, 17–24. <https://doi.org/10.1111/j.1467-6494.1935.tb02022.x>
- Stephenson, W. (1953). *The study of behavior; Q-technique and its methodology*. Chicago, IL, USA: University of Chicago Press.



- Subba, L., Bru, E., & Thorsen, A. (2017). Primary and lower secondary school teachers' perspectives of how they manage to support students with learning difficulties in inclusive classrooms. *Operant Subjectivity, 39*(3/4), 25–45.
- Thorsen, A. (2009). *Teachers' priorities and beliefs: a venture into beliefs, methodologies, and insights* (PhD). University of Stavanger, Stavanger.
- Utdanningsetaten Oslo kommune. (2018). *Årsrapport 2018, Vold og trusselhendelser mot ansatte og elever i Osloskolen*. Oslo: Utdanningsetaten.
- Van Exel, N. J. A., & de Graaf, G. (2005). Q methodology: A sneak preview. Retrieved from [www.jobvanexel.nl](http://www.jobvanexel.nl)
- Van Tubergen, G. N., & Olins, R. A. (1979). Mail vs personal interview administration for Q sorts: A comparative study. *Operant Subjectivity, 2*(2), 51–59.
- Wheeler, D. L., & Montgomery, D. (2009). Community college students' views on learning mathematics in terms of their epistemological beliefs: A Q method study. *Educational Studies in Mathematics, 72*(3), 289–306.
- Wilde, L., Mitchell, A., & Oliver, C. (2016). Differences in social motivation in children with Smith–Magenis syndrome and down syndrome. *Journal of Autism and Developmental Disorders, 46*(6), 2148–2159.
- Williams, S. R., Zies, D., Mullegama, S. V., Grotewiel, M. S., & Elsea, S. H. (2012). Smith-Magenis syndrome results in disruption of CLOCK gene transcription and reveals an integral role for RAI1 in the maintenance of circadian rhythmicity. *American Journal of Human Genetics, 90*(6), 941–949. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3370274/pdf/main.pdf>