

The Five Dimensions of Muslim Religiosity. Results of an Empirical Study

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Abstract

In this paper a new instrument measuring Muslim religiosity is presented. Drawing on Glock's multidimensional concept of religiosity, a quantitative paper-and-pencil study among 228 Muslims living in German cities was carried out. While previous studies have often simply translated indicators measuring Christian religiosity into Islamic terminology, this study applies Glock's model taking into account the specific characteristics of Islamic piety. In particular, the function of his fifth dimension of secular consequences was modified: Contrary to other denominations, in Islam this dimension is regarded to be as unique and independent as the other four. Empirical findings confirm this assumption. Applying principal component analysis with oblimin rotation yields a five-dimensional structure of Muslim religiosity: 1. Basic religiosity, 2. Central duties, 3. Religious experience, 4. Religious knowledge, and 5. Orthopraxis. Further statistical analysis indicates that the scales are reliable and internally valid.

Keywords: Muslim religiosity, measurement, multidimensionality, Charles Y. Glock, Islam, principal component analysis



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1 Introduction

The role of Islam has become a key public and political concern in recent years and this development has resulted in a growing interest in Muslim religiosity as the subject of empirical social research. How religious are Muslims? What influence does Muslim piety exert on political opinions? Is Muslim religiosity an obstacle to social integration? There is considerable demand for answers to questions like these, and to date several surveys have been carried out among Muslims living either in the Muslim world or in the Western diaspora (e.g. Pew Research Center 2007; Brettfield and Wetzels 2007; Hassan 2008). However, the results of these studies provide only limited insight into the aspects outlined above. There is still little knowledge about Islamic religiosity and its associations with other characteristics of Muslims. A basic prerequisite for investigating the varieties of Muslim religiosity is finding an adequate measurement instrument. Yet the measuring instruments applied so far appear to suffer from five main problems: I. A conception of Islamic piety as a one-dimensional construct, II. A one-to-one translation of Christian measures into Islamic terminology, III. Interpretation of research results within a framework of Western or Christian concepts of religiosity, IV. Use of indicators measuring more than religiosity, and V. A lack of statistical estimates of reliability and validity. In the following section these problems will be discussed in more detail.

1.1 Main problems of previous indicators measuring Muslim religiosity

I. Most research conceptualizes *Muslim faith as an inherent monolithic bloc*. Thus, Islamic religiosity appears to be a one-dimensional construct. Some studies use indicators that stress different single aspects of Muslim religiosity, e.g. belief in Allah, fasting at Ramadan, or just the religious self-assessment of the respondents (e.g. Mogahed 2009, Sen and Sauer 2006). Other studies adopt several indicators, combining them in an additive index (Kecskes 2000). However, the use of ever changing indicators to measure an imaginary one-dimensional Muslim religiosity unsurprisingly yields results that differ from study to study and even contradict each other: Whereas some observe a decline in religiosity (e.g. Meng 2004) others argue that “Re-Islamization” is on the rise (e.g. Heitmeyer 1997). Furthermore,

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Eilers et al. (2008) have already shown that the indicators used are not necessarily associated with each other¹.

II. Another problem is that *instruments measuring Christian religiosity are often simply translated into Islamic terminology*. The following example is that of an item taken from an international study which is used as an indicator for Islamic belief based on Stark and Glock's (1968) model of religiosity (Hassan 2008): "Only those who believe in the Prophet Mohammad can go to heaven". The original wording of the item developed by Glock to measure Christian religious belief is as follows: "Belief in Jesus Christ as Saviour is absolutely necessary for salvation". However, unlike Jesus, Mohammad has no divine status. He is seen as a role model for Muslims rather than as somebody to be believed in. In fact, orthodox Muslims are opposed to celebrating Mohammad's birthday because they perceive such an act as a form of polytheism. In short, a simple translation of indicators from the respective items of other religions can lead to measurement problems and to false interpretations of results.

Another example is the use of mosque attendance or membership of a mosque as an indicator for piety in the same way that church attendance is used in the case of Christian religiosity. It has been shown that church attendance is a good indicator for Christian religiosity (Jagodzinski and Dobbelaere 1993, Pollack and Pickel 2007). Here, religiosity coincides with church attendance. However, in Muslim piety, mosque attendance has a genuinely different role. First, it remains highly linked to gender. It is mostly men who go to a mosque, e.g. for the Friday prayer. Second, mosque attendance is not an inherent part of Muslim piety as such. A pious Muslim is connected with Allah in a direct way and does not need the mosque or the Imam as an agent intermediary. Therefore, the mosque has a genuinely different role from that of the church. Furthermore, membership of a mosque is not compulsory as it is in the case of Christianity. Most Muslims, even very pious Muslims, are not formal members of a mosque.²

III. A further problem that stems from the translation of items from other religious cultures is that *results are often interpreted within the framework of Christian or Western concepts of religiosity*. One example that illustrates this problem is the common misinterpretation of a central finding that can be found in many studies: Pointing to the strong and stable belief in Allah that is found consistently for the great majority of Muslims³ (e.g. Esmer 2002.) Islam is presumed to suffer from reli-

1 Huber has already dealt with this problem and developed a multidimensional instrument which can be applied for different denominations as well as religiosity without denominational adherence (Huber 2003 and 2009).

2 As Tezcan (2008) states the role of the mosque is changing.

3 According to results of the World Value Survey 2000, these show that in Turkey, Egypt and Morocco over 90 percent of respondents say that God is important in their lives (categories 8 to 10). This figure did not decrease in 2005 (basis: own calculations).

gious stagnation which is often interpreted as a lack of social progress and secularization⁴ (Bracke and Fadil 2008). Moreover, various studies falsely interpret agreement on the part of Muslims with central aspects of Islam as an endorsement of orthodoxy (Hassan 2008). In Western approaches, orthodoxy is defined as “(...) the extent to which the traditional supernatural doctrines are acknowledged” (Glock 1968). However, this is not true in the case of Islamic religiosity. As Pace (1998) states, being faithful is self-evident and natural within the Muslim population. This can be considered to hold true almost universally and represents an aspect shared by the great majority of Muslims. Secular Muslims as well as very pious Muslims can show the same degree of Islamic belief but may differ concerning other aspects of Muslim religiosity. Therefore, we are unlikely to find much variance when using indicators like the belief in Allah. However, a history of consistently strong belief in Allah does not mean that religious dynamics within Islam are absent. The focus on and expectation of familiar processes well known to exist in Christianity obstruct the view on other dynamics and variation that go beyond a traditional Christian outlook.

IV. A fourth problem is the use of *indicators measuring more than Muslim religiosity*. Many items are in fact political in nature (Heitmeyer 1997) and can be traced back to a growing interest in political Islam and Islamism. For instance, the attitude toward the morality of Western societies (e.g. Brettfeld and Wetzels 2007) could be interesting as a possible correlate of Muslim religiosity, but should not form an integral part of an instrument measuring religiosity. Such an approach leads to a mix of several aspects somehow associated with Islam that fails to measure Muslim religiosity systematically based on a theoretical framework.

V. A final problem associated with the studies mentioned here lies in the *statistical methods that are employed*. In many studies, important statistical measures of reliability and internal validity of the scales are not reported at all (e.g. Hassan 2008). In addition to this general problem of missing statistical information, a further substantial problem can be found in typological measures which mostly employ Cluster Analysis in order to analyze the structure of the included items: Here, not only are measures of reliability often missing, but also the possibilities of assessing the reliability of a typology remain very limited (see also Keskes and Wolf 1993). As a

4 Today, the validity of the secularization paradigm is increasingly challenged in scientific deliberations. “When the debate shifts to ‘Islam and secularisation’, such critiques, which revisit and re-articulate the paradigm of secularisation from within Sociology of Religion, are hardly taken into account (...)” (Bracke and Fadil 2008). However, Pickel has shown that the validity of the secularization thesis should not be rejected prematurely. According to his results the secularization thesis still explains best the current developments in religiosity in Europe. Only the evolutionary character of the theory has to be abandoned, as Pickel states (2009 and 2010).

consequence we do not know whether these items really measure the same theoretical construct, but also the instruments from different studies cannot be compared.

1.2 Measuring Muslim religiosity: A new approach

In order to obtain an adequate instrument to measure Muslim religiosity, some important structural particularities must be taken into account. One aspect is the absence of a central religious institution, like the church, defining the 'right belief' in Islam. Instead, there are different theological views concerning the definition of the 'right belief or piety'. These different points of views are all more or less accepted within the Muslim community (Rippin 2005, Calder 2007). Therefore, a multidimensional approach is needed in order to cover different facets of Muslim religiosity. In this respect, Glock's five-dimensional model of religiosity is the most established one in the sociology of religion, even though there remains scientific controversy concerning empirical evidence⁵ for his model of religiosity (Roof 1979, Huber 2003). There are studies which have employed this model. While they can be seen as the first steps towards a systematic multidimensional approach towards measuring Muslim religiosity, they still have shortcomings comparable to those discussed above (e.g. Hassan 2008 as the most important study in this respect). An adjustment of the indicators used for the specific dimensions is needed as well as a reconsideration of the role of the dimensions according to structural particularities of Islamic piety.

In this paper I use Glock's theoretical model as a heuristic tool in order to measure the different aspects of Muslim religiosity. In particular, a new role is given to the dimension of secular consequences. Whereas in other denominations this dimension is not a genuinely religious one (Stark and Glock 1968, Huber 2003), in the case of Islam it is considered to be an integral part of religiosity and as important and unique as the other four dimensions. The observance of religious norms in everyday life does not simply follow from the other four dimensions of religiosity (belief, ritual practice, experience and knowledge) but instead represents a different level of Muslim piety. This is of great importance if one seeks to capture the heterogeneity of Muslim religiosity beyond the bipolar axis of religiosity vs. non-religiosity. Islam is generally defined as a religion of orthopraxy and there-

5 Huber (2009 and 2003) recently applied Glock's multidimensional approach to the measurement of religiosity in intercultural studies. According to his results the multidimensional structure of religiosity can be confirmed across various religions. This instrument is especially useful when comparing different denominational groups or different countries with varying religious backgrounds. However, in order to capture the variance within one denominational group a more specific measure is needed (Krämer 2009). Therefore, it is important to assess the role of specific Islamic norms for everyday life and not only religious norms in general. In the latter case we would gain only little variance among pious Muslims.

fore differences should be manifested in the degree to which religious norms are observed in everyday life. This is to be understood as a counterpart to Christian orthodoxy (Ruthven 2000).

The paper is organized as follows: First, the indicators employed for the single dimensions will be discussed. Second, results of a survey on religiosity carried out among Muslims living in selected German cities will be presented.

The dimensional structure of Muslim religiosity will be analyzed using principal component analysis (PCA). Finally, the validity of the new instrument will be tested.

2 Data

A precondition for the development of scales is to have a sample of the target population of adequate size and heterogeneity in order to cover different patterns of religiosity. Only in this way can the multidimensional structure of religiosity be unfolded. If only members of a specific religious community with relatively similar religious patterns were surveyed, this would affect the results and lead to a low dimensional solution (see also Huber 2003). This is why it is of high importance to capture the heterogeneity of the target population in the sample as well as possible.

The data used in this study were collected during a university research project in the spring of 2009. Between February and April, 228 Muslims living in selected German cities in North Rhine Westphalia (mainly Dusseldorf, Cologne and Bonn) were surveyed. A self-administered survey design was used. In order to achieve high religious heterogeneity in our sample, we employed a multi-staged sampling procedure as it is common in order to survey rare populations with no existing sampling frame (Kalton 2009). At the first stage different locations were selected where Muslims tend to congregate. The aim was to oversample religious Muslims as it is assumed that the variety of religious patterns is larger among religious Muslims compared to less religious Muslims. We therefore used two sampling strategies: 1. Sampling in Mosques after Friday prayer and at special events in order to achieve an oversample of religious Muslims. 2. Sampling at non-religious locations in order to recruit also secular or non-practicing Muslims.

1. In order to achieve an oversample of religious Muslims, we selected different Mosques and classified them depending on their associational affiliation. As the religious orientation of the different mosque associations differ, we employed a quota sample. The highest concentration of visitors occurs for the Friday prayer, so we distributed questionnaires when the visitors were leaving the Mosques. Depending on the number of visitors, we implemented a random selection procedure: If there were many persons we gave questionnaires to every third, if there were only a few then everyone received a questionnaire. For the reason that mostly male

Table 1: Demographic characteristics of the sample (N=228)

	Migration background		
	Turkish (N=144)	N. African (N=55)	Other (N=29)
Age			
below 30	29.2	36.4	34.5
30 to 44	45.1	34.5	44.8
45 to 59	13.9	21.8	10.3
60 and older	11.1	1.8	0.0
n.a.	0.7	5.5	10.3
Sex			
male	65.3	63.6	75.9
female	34.7	34.5	24.1
n.a.	0.0	1.8	0.0
Education			
still in education	3.5	3.6	0.0
no education/primary school	14.6	1.8	0.0
low (up to 9 years)	18.1	12.7	10.3
medium (10 years)	16.7	12.7	10.3
high (12/13 years)	41.7	56.4	62.1
other	0.7	5.5	13.8
n.a.	4.9	7.3	3.4

Muslims go to the Mosque for the Friday prayer, we also went to special religious events, in which also or only Muslim women take part.

2. In order to recruit also secular or less religious Muslims to cover the other end of the religious pole, we selected different locations. First, we selected districts with a high proportion of Muslim residents. Afterwards we selected different locations in these districts as Turkish or Arabic supermarkets and restaurants in order to distribute the questionnaires. Second, we distributed questionnaires to Muslim students at Dusseldorf University and at consulates of countries with a majority Muslim population.

The obtained sample has the following demographic characteristics: Most of the respondents (63.2 percent) are of Turkish descent, who make up by far the greatest proportion of Germany's Muslim population. Around 24 percent arrived from North African countries like Morocco, Tunisia or Egypt. Another 12.7 percent are of different origin. Almost half of the respondents have German citizenship.

Table 1 shows the frequency distribution of the different ethnic groups in terms of age, education and gender. The sample is biased in terms of education and sex. Highly educated Muslims are overrepresented, as are males.

Table 2: Oversample of very religious Muslims

	own study	ZfT*
very religious	29.2	17.2
rather religious	45.1	50.9
rather not religious	13.9	22.7
not religious at all	11.1	4.5
n.a.	0.7	4.6

basis: N=146, respondents of Turkish origin

*Zentrum für Türkeistudien, 2007 North Rhine-Westphalia (*Center for Turkish Studies*)

In order to check the religious heterogeneity of the obtained sample, we compared the religious self-assessment of the Turkish subsample with the results of a representative study on residents of Turkish origin (see table 2). The comparison shows that “very religious” Muslims are overrepresented in our study as was intended. However, there is also a viable proportion of less religious Muslims with 25% assessing themselves as rather not religious or “not religious at all”. Therefore, the precondition of a heterogeneous sample is fulfilled in this study as explained above.

3 Theoretical considerations and the selection of indicators

Charles Glock’s (1962) multidimensional model of religiosity serves as a heuristic tool in order to separate different aspects of Muslim religiosity. Glock differentiates between five relatively independent dimensions and claims that these cover all possible forms of religious expressions to be found in all world religions. These are the *ideological dimension*, which he calls ‘belief dimension’ in his later work. This dimension contains the agreement with basic belief contents of a religion, e.g. the belief in God. The *ritualistic dimension* is divided into the sub-dimensions ritual and devotion. The assumption is that the highly formalized rituals performed mainly in the public do not necessarily coincide with private, informal and spontaneous acts of worship. Furthermore, he distinguishes between an *experience dimension*, a *knowledge dimension* and a *dimension of secular consequences*. The latter was later excluded from the model (Stark and Glock 1968). It is not clear whether the impact a religion has on the everyday life of its adherents is part of a religious commitment or whether it simply follows from such a commitment. This could be true in the case of some denominations but not in that of Islam. As will be

shown below, religious norms regulating the everyday life of Muslims are of great importance in assessing Muslim religiosity. It represents the counter dimension for orthodoxy, which is measured by the belief dimension in the case of Christian religiosity. This important aspect has received inadequate attention in research to date. In the following sections, the indicators employed to measure the single dimensions will be discussed briefly.

Belief

The basis of religiosity is the agreement with the central contents of belief of a specific religion (Glock 1969). The main contents of religious belief within Islam are, on the one hand, the unquestioned belief in the existence of Allah and, on the other, the belief in the Quran as the pristine words of Allah (Ruthven 2000). Additionally, the respondents were asked to what extent they believe in the existence of Jinn, angels and other creatures found in the Quran.

Ritual

Following Waardenburg (2002), the central religious rituals as described by the five pillars of Islam belong to the primary signs of Islam that are accepted by Muslims worldwide even when they are not performed. The five pillars contain more than religious rituals. Additionally, they include the statement of belief and the religious donation (*zakat*), which are related to other dimensions according to Glock. In the course of the empirical analysis we will see whether these aspects belong together or not. In order to measure the ritualistic dimension, I used the frequency of performing the ritual prayer (*salat*), the pilgrimage to Mecca, fasting during the holy month of Ramadan, and celebrating the end of the fasting during Ramadan (*eid sagir*)⁶.

Devotion

As indicators to measure the practice of religious devotion, I used the frequency of praying personally to Allah (*dua*) and the frequency of reciting the *basmala*. Every prayer opens with this formula and pious Muslims generally recite it before carrying out important tasks in everyday life. In this way, the believer places his action under Allah's protection and requests that they be successful (Khoury et al 1991). These are acts of worship outside formalized and social rituals. The believer carries them out in privacy and spontaneously.

6 Mosque attendance is not included into the dimensional measure because it is no integral part of the central rituals but a suggestion (Rippin 2005). Furthermore, mosque attendance is associated with sex and therefore is not an appropriate measure.

Experience

Glock (1969) assumes that a religious person will one day experience a religious emotion. As Stark (1965) emphasizes, the aspect of a perceived communication with a supernatural agency is a characteristic of religious experience. Particularly in *popular Islam* (Waardenburg 2002), communication with the divine is very common. As Waardenburg points out: “(...) not knowledge but participatory experience (...)” (Waardenburg 2002: 67) is of major concern in popular Islam. Extraordinary things or happenings are perceived as signs from *beyond* (ibid.). Bad or good incidences are often ascribed to Allah, who is believed to reward or punish human behaviour in this world. This corresponds with the subtype of responsive religious experience where “(...) the divine actor is perceived as noting the presence of the human actor” (Stark 1965). Followers of more orthodox traditions in Islam – especially younger generations who show a more rational approach to Islam – do not believe that Allah punishes in this world but rather in the next (Waardenburg 2002, Mihciyazgan 1994). Therefore, this dimension not only measures the degree of religiosity but is also able to differentiate between different types of religious orientations.

In order to measure the experiential dimension, I included the two subtypes of “confirming” and “responsive” religious experience as emphasized by Stark and Glock (1968). The confirming experience, characterized as a sense of the presence of the divine actor, was measured by the following item: “Do you feel the presence of Allah?” In order to measure responsive religious experience, the respondents were asked the following questions: “Have you ever felt that Allah communicates with you?”, “Have you ever felt a sense of being rewarded by Allah?” and “Have you ever felt a sense of being punished by Allah?”.

Knowledge

Some knowledge of religious contents is expected to be held by believers in all religions (Glock 1962). As Glock (1962) emphasizes, it is extremely difficult to decide which religious contents matter in every single denomination. This is even more difficult in the case of Islam. Given the absence of a central religious authority in Islam, the focus can vary. Generally, the contents of the Quran and the *Sunnah*⁷ are the main sources of Islamic knowledge and it is expected that believers know a minimum of these contents (Waardenburg 2002). But which knowledge really matters for individual Muslims is not fixed. Therefore, I decided to let the respondents assess their knowledge concerning firstly, the contents of the Quran, secondly, concerning the life and actions of the prophet Mohammad, and thirdly, concerning Islam in general.

7 The *Sunnah* contains the sayings and living habits of Mohammad.

Consequences

Religious law has a predominant function in Islam (Schacht 1993). It does not only give guidance to the correct performance of the religious rituals, but also regulates the everyday life of the believers. The observance of those norms is not to be interpreted solely as a consequence of religiosity even when such norms relate to the everyday life of the believers. Their observance is to be understood as religious worship itself, which is a crucial point. For this reason, the dimension of secular consequences should be conceptualized as an integral part of religiosity in Islam. Especially within the group of pious Muslims, key differences should appear concerning specific religious norms. The Sunni Islamic tradition mostly consists of religious norms regulating individual and social life. This is the primary source of discussion among Islamic scholars, often leading to different opinions and norms concerning the same issue. This is shown for instance by the different schools of Islamic jurisprudence. Regarding dietary rules, it can be stated that most of the scholars more or less agree. The prohibition of eating pork is more or less self-evident and the great majority of Muslims have not been eating pig meat even at times when they were not performing other ritual duties. Even if the degree to which observance of the rules prohibiting the consumption of meat which is not *halal* (slaughtered according Islamic norms) and those of drinking alcohol varies from one believer to the other, these examples are accepted in fully as religious norms among the Muslim community. Similarly, the compulsory religious donation (*zakat*) is unquestioned as part of the five pillars of Islam. By contrast, issues concerning the most important aspects of Islamic morality – namely family and gender relations – are continued subjects of debate. A strict interpretation of key religious sources prohibits the interaction between women and men who are not family members. This led to the spatial segregation of the sexes in the public sphere, for instance in Saudi Arabia and in Iran; but this interpretation can also manifest itself in the separate celebration of collective ceremonies like weddings or funerals including in secular countries (Yazbeck Haddad and Lummis, 1987).

A similar issue is the prohibition of the act of touching hands between unrelated men and women, due to the possible sexual overtone of such an act. In extreme cases this leads to an avoidance of hand shaking with the opposite sexes (*ibid.*).

In recent decades, other topics have been a matter of concern within the Muslim community. There is an ongoing discussion on whether listening to music is *halal* or *haram*. Initially, this discussion began as a critique of Sufism and its practice on the part of Wahhabi scholars. Music plays a major role in most of the Sufi brotherhoods (Schimmel 2003). Otterbeck (2008) differentiates between three main positions regarding this issue: First, that of the moderates, who say that music in itself is not forbidden. This point of view argues that it is the aspects accompanied by music which must be assessed as a matter of *haram* and *halal* (e.g. sexual excitement), not music itself. Second, that of the hard-liners, who strictly refuse

Table 3: Indicators used for the single dimensions of religiosity

Dimension	Code	Item
Belief	B1	Belief in Allah
	B2	Belief in the Quran as the unchanged revelation
	B3	Belief in the existence of Jinn, Angels etc.
Ritual	R1	Frequency of performing the ritual prayer
	R2	Pilgrimage to Mecca
	R3	Fasting during Ramadan
	R4	Celebrating end of Ramadan
Devotion	D1	Frequency of personal prayer to Allah
	D2	Frequency of recitation of the <i>Basmala</i>
Experience	E1	Feeling: Allah is close
	E2	Feeling: Allah tells you something
	E3	Feeling: Allah is rewarding you
	E4	Feeling: Allah is punishing you
Knowledge	K1	Knowledge of Islam in general
	K2	Knowledge of the contents of the Quran
	K3	Knowledge of the life and actions of the prophet
Consequences	C1	Drinking alcohol
	C2	Eating <i>halal</i> meat
	C3	Avoiding shaking hands with opposite sex
	C4	Sex segregation at marriages and other celebrations
	C5	Muslims should not listen to music
	C6	Religious donation (<i>zakat</i>)

music in general. And third, the position of liberals, who are opposed to all forms of censorship (ibid.).

In order to measure the degree of religious norms influencing the daily actions of believers, I used indicators from the different areas mentioned above: 1. Dietary rules: eating of *halal* meat (slaughtered following Islamic rules) and consumption of alcohol, 2. Paying religious donation (*zakat*), 3. Gender issues: segregation of the sexes and avoidance of hand shaking with the opposite gender, 4. Entertainment: opinion on whether a Muslim is allowed to listen to music or not.

Table 3 gives a summary of the indicators employed in order to measure different aspects of Muslim religiosity. The abbreviations of the items, which are ordered according to their adherence to the theoretical dimensions, will be used in the following sections.

4 Results

In the first section of this chapter the dimensional structure of the indicators discussed above will be explored. In order to analyze whether the dimensional structure of Muslim religiosity resembles the suggested model by Glock, an explorative method is used. Principal component analysis⁸ with non-orthogonal rotation (oblimin) was performed in order to determine the dimensional structure of the items.⁹ The following criteria were used to classify the items: 1. Communalities above .5, 2. Component loadings above .5, 3. Clear relation to one component. Additionally, the reliability of the solution was analyzed employing Cronbach's Alpha. Cronbach's Alpha equal or higher than .8 is an estimate for high reliability. Items will be excluded if a better estimate of Cronbach's Alpha can thus be obtained.

In the second part, the internal validity of these components will be analyzed testing selected assumptions concerning religiosity.

4.1 Dimensions of Muslim religiosity

The solution of an overall principal component analysis supports the multidimensional structure of Muslim religiosity. Five separate dimensions with an Eigenvalue higher than one could be obtained. Table 4 shows the component loadings of the items on the single dimensions.

Most of the items clearly belong to one component, even when some items have component loadings between .3 and .4 on a second dimension. Three items appear problematic. These are, first, the item "celebration of breaking the Fast" (R4), which has component loadings lower than .5. For this reason, it will be excluded from further analysis. One reason is probably that the celebration of breaking of the fast at the end of Ramadan (*eid al-fitr*) has more or less the same status as Christmas or Easter, and participation in it is not an appropriate indicator for religiosity. The second item with unsatisfactory estimates is item C6, measuring the frequency at which the religious donation (*zakat*) is made. The dependency of this donation on one's financial situation possibly makes it a weak indicator. The communality and therefore explained variance is very low for this item. This item will thus also be excluded from further analysis. The third problematic item is item C4, asking for the necessity of gender segregation. It has quite high component loadings (.44 and .57) on two components. Due to theoretical considerations, this item will be associated to component five (see section 3).

8 The number of selected dimensions depends on the Kaiser criterion.

9 Additionally, a Categorical Principal Component Analysis (CatPCA) was employed in order to check the stability of the solution. The solution of CatPCA and PCA are almost the same.

Table 4: Five dimensional solution of PCA^{1) 2)}

Items	Component loadings on dimension					communalities
	1	2	3	4	5	
B1	0.929					0.783
B2	0.900					0.861
B3	0.733					0.724
D1	0.598					0.608
D2	0.717					0.763
R1		0.674				0.673
R2		0.727				0.571
R3		0.740				0.729
R4	0.438	0.341				0.423
E1	0.659					0.591
E2				0.793		0.690
E3				0.854		0.691
E4				0.824		0.802
K1			0.850			0.761
K2			0.898			0.796
K3			0.829			0.710
C1	-0.687					0.578
C2		0.500				0.586
C3					0.697	0.591
C4		0.442			0.565	0.681
C5					0.793	0.627
C6		0.594				0.425

1) component loadings above .3 displayed only

2) oblimin rotated solution, pattern matrix

Looking at the dimensional structure of the items, two of the components are the same as Glock suggests in his model. These are the experience dimension (component 4) and the knowledge dimension (component 3). Furthermore, a distinct dimension measuring religious norms could be obtained, as previously assumed. This is the fifth dimension. Here, the items related to gender relations and popular media are placed. Those related to dietary rules are associated to a different component. They are highly associated with religious rituals, as set out by the five pillars of Islam. For this reason, I have termed this dimension (component 2) “central duties”. It contains, more or less, those religious duties upon which the majority of pious Muslims agree. The norms concerning gender relations and music go further

and measure a more orthodox kind of religiosity. Therefore, component five will be called “orthopraxis”. The first dimension contains items measuring religious belief as well as devotional practice and confirming religious experience. This component will be called “basic religiosity”. In the following sections the obtained dimensions will be described and interpreted in depth. Further analysis to assess the reliability of the single dimensions will also be carried out.

Basic Religiosity

The first dimension contains all items of religious belief and devotional practice. This means that religious belief cannot be observed independently of practice. Belief is followed by a minimum of devotional religious practice like personal prayer beyond formalized rituals. Additionally, it would appear that some kind of religious experience is needed to confirm Islamic belief. Belief is accompanied by a feeling of an omnipresence of Allah, which is supported by the item “feeling the presence of Allah” loading on the same component. This item was related to the dimension of religious experience theoretically; yet clearly it measures a different aspect of Muslim religiosity. Therefore, no pure belief on a cognitive level could be detected. Instead, a form of core religiosity exists, expressing a general religious commitment. However, the performance of general rituals does not necessarily follow from this. It represents religiosity on an individual level. Communal aspects or collective religious rituals are not part of it. This dimension is mostly characterized by the item “there is no doubt that Allah does exist”, with the highest component loading. The reliability of this scale is supported by a pretty good estimate of Cronbach’s Alpha (0.90). This dimension is termed basic religiosity because it is a precondition for the other dimensions. On the other hand, the other dimensions cannot be deduced from it. For this reason, basic religiosity must be regarded as separate.

Central Religious Duties

The second dimension expresses the observance of central religious duties. It consists more or less of the observance of the “five pillars of Islam” and additional basic norms: the ritual prayer, fasting on Ramadan, the pilgrimage to Mecca and dietary rules. Accordingly, the adherence to formalized rituals goes hand-in-hand with the observance of some basic religious norms. As discussed before, these norms concerning dietary rules gained the status of natural Islamic duties. This can also be observed empirically. In contrast to the first component measuring Muslim piety on an individual level, the second measures piety on a collective or social level. The religious practices characterizing this dimension have in common, that they are performed mainly together with others. They have a communal character. Additionally, it contains only overall accepted Muslim practices and therefore is

separate from an orthodox kind of piety. For this reason, this component is called central duties. With a reliability estimate of .812, this instrument can be considered highly reliable.

Religious Experience

As Glock assumes for all religions, an independent dimension measuring religious experience for the case of Muslim religiosity could be obtained as well. As suggested by Stark (1965), I differentiated between confirming and responsive religious experience. The three items related to responsive religious experience make up their own dimension.¹⁰ Therefore, only experiences including some kind of perceived communication with the Divine, which exceeds a vague feeling of such a presence, can be separated accurately. The statistical estimates confirm the reliability (Cronbach's Alpha = .81) of this scale.

Religious Knowledge

The dimension of religious knowledge also corresponds with Glock's model. All three items measuring the extent of religious knowledge highly correlate with the same dimension. The reliability of the scale is high, with a Cronbach's Alpha estimate of 0.83.

Orthopraxis

The consequential dimension of religiosity has an important and distinct role within Muslim religiosity. The influence of Islam in the everyday life of believers is not only a consequence of the other dimensions, as Glock puts it, but an own act of worship in and of itself. The degree to which Islam structures the everyday life of believers beyond the standardized religious rituals gives insight into different conceptions of piety within the Muslim community. Whereas some rules, such as those governing diet, are highly standardized and belong to the central duties as discussed above, other religious norms should be differentiated, as suggested by the empirical results. Religious norms organizing gender relations make up a distinct dimension that cannot be explained by the other dimensions of Muslim religiosity. These constitute a separate dimension. In contrast to Glock's suggestion to exclude this dimension from the model, its independent status is confirmed. Within the same dimension we find the item of whether a Muslim should listen to music or not. This dimension expresses the degree of orthopraxis which corresponds with orthodoxy in the case of Christian religiosity.

10 The item E1 measuring confirming religious experience is related to *basic religiosity* as explained above.

Table 5: The five dimensions of Muslim religiosity

basic religiosity	central duties	experience	knowledge	orthopraxis
religiosity on an individual level differentiates between believing and not believing Muslims contains: • belief • devotion • sense of omnipresence of Allah	Religiosity on a collective level differentiates between practicing and not practicing Muslims contains: • ritual prayer • fasting at Ramadan • pilgrimage to Mecca • observance of dietary rules	responsive religious experience contains: • sense that Allah... • communicates with oneself • punishes behavior • rewards behavior	There is no fixed set of knowledge expected to be known by believers contains self-assessment of knowledge: • Islam in general • contents <i>Quran</i> • contents <i>Sunna</i>	Counterpart to orthodoxy in Christianity contains observance of strict religious norms: • gender relations • music

The reliability of this dimension is not very high (Cronbach’s Alpha of .64), but due to the number of indicators it is satisfactory. Clearly, more appropriate measures for this dimension need to be developed in order to improve its reliability.

As a last step, five PCA’s were carried out in order to re-check the mono dimensionality of every dimension and to save the component values of every respondent on these dimensions. All five PCA’s provide mono dimensional solutions with high estimates. Component 1 containing the indicators belief, devotion and confirming religious experience, which measure *basic religiosity*, explains 70 percent of variance. The component loadings vary between .76 and .93. Component 2 containing religious rituals and dietary rules measuring *central duties* of Islam explains 63 percent of variance, the component loadings vary between .76 and .85. The third component measuring responsive *religious experience* explains 73 percent of variance, the component loadings vary between .83 and .90. Component 4 measuring *religious knowledge* explains 75 percent of variance with component loadings varying between .84 and .89. The fifth and last component measuring *orthopraxis* explains 59 percent of variance, the component loadings vary between .70 and .82.

Table 5 summarizes the main characteristics of the obtained dimensions of Muslim religiosity.

4.2 Associations between the dimensions of Muslim religiosity

Each of the five dimensions of Muslim religiosity represents a different facet of piety. Therefore, each of them is separate from the others and provides insight to religiosity from a different perspective. However, they only mirror Muslim religiosity as a complete picture when looking at all of them simultaneously. Although conceptually the dimensions might be distinct, it is to be assumed that they are correlated in the real empirical world. Table 6 shows the correlation matrix of the five dimensions of Muslim religiosity. The correlation coefficients show, that some of the dimensions highly overlap on an empirical level. This is the case especially for dimension 1 and 2 which have almost 50% of common variance. Therefore, religiosity on a collective level is highly connected to individual religiosity. Also, we find a rather high correlation between the dimension of ritual duties and orthopraxy with $r=.59$. Orthopraxy and basic religiosity are less connected to each other with $r=.41$. The dimensions of religious experience and religious knowledge are less correlated with the other measures of religiosity (with correlations ranging from .16 to .46), whereas religious experience is mostly connected to individual piety (basic religiosity), and religious knowledge to collective piety (central duties). This shows that religious experience as an individual experience is based on belief and devotional religious practice to a certain degree. In contrast, the observance of religious duties requires some knowledge about religious contents and the performance of formalized rituals. However, religious knowledge and religious experience are more or less uncorrelated.

The overall structure of the correlation matrix indicates that there are two main approaches of Muslim religiosity: 1. some kind of spiritual religiosity based on individual communication with the divine and religious experience, and 2. a more formalized kind of religiosity based on social rituals. This corresponds to the two main lines of interpretation of Islamic key sources by Muslim scholars (see Ripin 2007). The first is based on a mystic interpretation represented ideal typical for Sufism. The second is based on a legal interpretation of the key sources represented ideal typical for the Islamic jurisprudence.

The interrelations of the five dimensions should be investigated in more detail in further research.

Table 6: Correlation Matrix of the five dimensions of Muslim religiosity

	basic religiosity	central duties	experience	knowledge	orthopraxis
basic religiosity	1	0.70**	0.46**	0.22**	0.41**
central duties		1	0.32**	0.41**	0.59**
experience			1	0.16*	0.23**
knowledge				1	0.29**
orthopraxis					1

** p<0.01; *p<0.05

4.3 The validity of the dimensions

In order to evaluate the internal validity of the obtained dimensions, I test some assumptions about expected associations between religious factors. The assumptions are self-evident and will not be explained in detail for this purpose. Thus, the latent variables obtained by the five PCAs are used. The latent variables have a mean value of 0 with a standard deviation of 1.

Assumption 1: The higher the value on the single dimensions of religiosity, the higher the self-assessment of religiosity.

In order to see if there is congruence between perceived and measured religiosity, which should be the case, I compare the mean differences on the five dimensions between those assessing themselves as religious and those who do not. As is shown in table 7, the mean differences for all five dimensions are highly significant on a 1 percent level. The highest associations with religious self-assessment¹¹ could be obtained for the dimension of *basic religiosity* (Eta=0.69) and *central duties* (Eta=0.61). This means that it is belief and private worship which determines the definition of ‘religious’ most; this, in turn, supports the label of this dimension as being the base of religiosity.

Another interesting result is that the relation between religious self-assessment and the five dimensions is not ordinal in all cases. Especially in the case of *religious experience* the mean for ‘very religious’ (-0.09) is lower than for ‘rather religious’ (0.25). This means that Muslims with a high degree of religious experience tend to assess themselves as less religious compared to those with a lower degree of religious experience. I assume that the self-assessment depends on the peer group the respondents have in mind. If we consider the two approaches to Muslim religiosity

11 Question: “As how religious would you assess yourself? Very religious, rather religious, rather not religious or not religious at all?”

Table 7: Mean differences between the five dimensions of religiosity in association to the religious self-assessment

		basic religiosity	central duties	experience	knowledge	orthopraxis
very religious	mean	0.22	0.63	0.09	0.54	0.59
	N	37	39	36	38	34
	Std	0.84	0.53	0.98	0.95	1.18
rather religious	mean	0.27	0.14	0.25	0.06	0.01
	N	126	136	122	137	116
	Std	0.39	0.82	0.82	0.88	0.93
rather not religious	mean	-0.77	-0.97	-0.56	-0.60	-0.61
	N	33	35	35	36	34
	Std	1.38	1.05	1.20	0.95	0.61
not religious at all	mean	-3.71	-2.41	-1.72	-1.39	-0.80
	N	5	5	6	6	6
	Std	1.10	0.29	0.39	1.53	0.40
	Eta	0.69**	0.61**	0.43**	0.41**	0.39**

** $p < 0.01$

mentioned in the former section, those Muslims defining their piety mainly through religious experience (spirituality) might see themselves as less religious compared to those strictly observing the central religious duties.

Assumption 2: The higher the values on orthopraxis (dimension 5), the more important religious rules are for everyday life.

The observance of religious norms in everyday life should be accompanied by assessing religious rules as being important for everyday life. This assumption can be confirmed in this study (see table 8). The association between both variables is quite high with $\text{Eta} = 0.55$ on a highly significant level ($p < 0.001$). Compared with the self-assessment of religiosity, the importance of religious rules¹² is a better predictor for orthopraxis. Nevertheless, the association with *basic religiosity* and *central duties* is still higher. This is an indication that perceived observance of religious rules must not coincide with orthopraxis. Due to different interpretations of

12 Question: "How important are religious rules in your everyday life? Very important, rather important, rather not important, not important at all?"

Table 8: Mean differences between the five dimensions of religiosity in association to the importance of religious rules for the everyday life

		basic religiosity	central duties	experience	knowledge	orthopraxis
very important	mean	0.41	0.62	0.23	0.23	0.59
	N	84	88	80	88	79
	Std	0.17	0.43	0.81	0.94	0.97
rather important	mean	0.22	0.00	0.22	0.00	-0.29
	N	80	84	77	86	73
	Std	0.41	0.79	0.90	0.91	0.84
rather not important	mean	-0.92	-1.15	-0.74	-0.51	-0.75
	N	27	34	32	34	27
	Std	1.32	1.01	1.09	1.17	0.54
not important at all	mean	-3.20	-2.17	-1.75	-0.38	-0.97
	N	9	8	8	8	9
	Std	1.43	0.40	0.37	1.41	0.30
	Eta	0.80**	0.73**	0.50**	0.26**	0.55**

** $p < 0.01$

what religious rules may be, self-assessment seems to be a very subjective measure. The comparability of those subjective measures is doubted.

Assumption 3: The higher the values on the single dimensions of religiosity, the more frequent the mosque attendance at several occasions (for the ritual prayer, to listen to religious talks, to spend spare time).

Even when mosque attendance is not a direct religious duty for believers, it represents the physical presence of Muslims in a given place. Therefore, it can be declared as a source of Muslim identity (Rippin 2005). Muslim men in particular are expected to attend the Friday noon prayer in a mosque (ibid.). However, more and more women participate in mosque activities in addition to the classical Friday prayer. Such activities include religious talks held by Muslim scholars or by Imams, or the organization of leisure activities, which are open for male and female Muslims, even when there is gender segregation. It can be assumed that the higher the values on the dimensions of Muslim religiosity, the more frequently respondents will participate in these activities in a mosque. With regard to mosque attendance for the purpose of performing the ritual prayer, this is confirmed for all five dimen-

Table 9: Correlations of the five dimensions of religiosity and Mosque attendance (Pearsons R)

Mosque attendance	basic religiosity	central duties	experience	knowledge	orthopraxis
• to pray	0.44**	0.62**	0.18**	0.27**	0.42**
• to listen to religious talk	0.37**	0.58**	0.16*	0.32**	0.46**
• to spend spare time	0.24**	0.44**	n.s	0.25**	0.45**
N	201	215	199	217	190

** = $p < 0.01$

* = $p < 0.05$

n.s. = not significant

sions, whereby the correlation is highest for the dimension of *central duties* and lowest for the dimension of *religious experience* (see table 9). Overall, the correlations are lower for mosque attendance to listen to religious talks and to spend spare time. These even become insignificant for the case of religious experience. An exception is the dimension of *orthopraxis*. In this case, it is the other way around: The associations of *orthopraxis* and the frequency of going to a mosque to listen to a religious talk or to spend spare time are slightly higher than mosque attendance to perform the ritual prayer. This is an indication of stronger links to mosques on the part of Muslims following orthodox norms in general.

5 Discussion

In this paper I applied a multidimensional approach in order to measure different dimensions and thus the diversity of Muslim religiosity. Starting with Glock's model of religiosity, indicators for single dimensions (belief, ritual, devotion, experience, knowledge, and secular consequences) were derived on the basis of scientific literature on Islam. Glock's model served as a heuristic tool to separate different aspects of religiosity. In the course of the analysis, an explorative approach was taken in order to check whether the structural organization of the items follows a different pattern from the one Glock suggests. Due to the particularities of different denominations, such divergence was to be assumed. Indeed, the results show a slightly different organization of the items. Five different dimensions of Muslim religiosity could be obtained. The first dimension consists of items measuring belief and devotional practice as well as the feeling of a divine omnipresence. A sole belief dimension was thus not found in this study. Belief is highly interrelated

with private and non-formalized acts of worship and a sense of the existence of the divine. This dimension is termed *basic religiosity*. It represents a minimum commitment on an individual level and is therefore the basis of Muslim religiosity in general. However, the other dimensions do not necessarily follow from it. Distinct from the first, a second dimension measures the observance of *central religious duties* mainly covered by the five pillars of Islam. Here, we find the performance of the ritual prayer, fasting at Ramadan, the pilgrimage to Mecca, and the observance of some dietary rules, which represent highly formalized religious practices on a collective level. The third dimension follows Glock's dimension of *religious experience* and involves indicators measuring responsive religious experience. In order to measure the extent of religious knowledge, I employed a subjective measure. The respondents assessed their own knowledge concerning Islam in general, the life of the prophet (*sunna*) and the contents of the *Quran*. The results confirm that these indicators make up an own dimension, which is highly reliable. Therefore, the fourth dimension also follows Glock's suggestion of an autonomous dimension of *religious knowledge*. An important result of this study is that the observance of religious norms beyond basic dietary rules constitutes a distinct dimension of its own. Different to religious dietary rules, which are part of central religious duties, the indicators measuring this dimension capture a more orthodox form of religiosity. These are religious norms concerning gender segregation, avoidance of hand shaking and avoidance of listening to music. For strict Muslims the observance of those religious norms concerning everyday life is an act of worship in itself, and does not only follow from the other aspects of religiosity. It is a particularity of Islam that orthodoxy does not manifest itself in the actual contents of a Muslim's beliefs - but in how Islam determines his or her everyday life. Therefore, this dimension can be seen as counterpart for orthodoxy in other religions and will be called *orthopraxis*. Taking this dimension into account can help to discover differences within the Muslim population that otherwise would not be noticed. Since this study is the first investigation of this dimension, future research could focus on improving the reliability of this scale. Here, specific religious norms concerning family and gender relations could be the subject of scrutiny since these are the most important subjects in the discourse of the global Muslim community. Another orthopractical aspect worth exploring is the handling of the general *Bilderverbot* (prohibition of images) in Islam, i.e. the practice of banning certain forms of pictorial representations. Finally, the extent of literal interpretations of those norms can also provide substantial information on how orthodox Muslims are.

Whether the five dimensions of Muslim religiosity appear in the same way in a representative sample or in a different national context should also be investigated in further research. Especially the interrelations of the distinct dimensions should be investigated in more detail. The correlation matrix of the five dimensions gives hints to different approaches of religiosity among Muslims.

The last step of the analysis was to investigate the validity of the dimensions. The results show that the five dimensions are interrelated with other aspects of Muslim religiosity, as previously assumed. Therefore, validity of the dimensions could be confirmed. An interesting result should be highlighted in this context: The religious self-assessment and importance of religious rules – usually used in surveys as measures of Muslim religiosity – are most highly associated with the dimension of *basic religiosity*. While such measures are able to distinguish between believing and non-believing Muslims, they cannot capture variations within the group of believing Muslims. This could also explain why the results of many studies fall short of showing clear relationships between religiosity and other characteristics. This is no surprise considering that basic religiosity contains those aspects shared by the great majority of Muslims. The five dimensional measures presented here can thus contribute to solving the problems that arise due to the great diversity of Muslim religiosity.

7 References

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