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The Dynamics-Variations in Religious and Legal Understandings of Halal Slaughter

Abstract

Purpose: This paper attempts to provide an overview of ~~in~~ different understandings regarding the concept of "what constitutes halal" and "who determines this concept?" In practice, this equates to contemporary legal understandings versus religious understandings. The paper further aims to provide an overview of competing Muslim understandings regarding the concept of "What does or does not constitute halal slaughter?" In practice, this equates to evaluating the application of no stunning at all upon an animal (unanimous acceptance) versus the application of reversible stunning upon an animal (contested).

Design: The study includes a review of priori literature and considers the current scenario of the halal poultry trade and raises important questions regarding Islamic dietary practices, halal food integrity, religious and animal welfare understandings. ~~This includes evaluating the ever-increasing demand for halal products and to what extent this demand can be addressed. Three key questions were raised: "To what extent does stunning impact halal slaughter?", "Who determines what is halal slaughter?" and "What are the variations and tensions between legal and religious understandings of halal slaughter?"~~

Findings: The examination of such requirements and concomitant consumer and provider expectations is underpinned by a study of an operational framework, i.e. industry practices with poultry (hand slaughter, stunning, mechanical slaughter, etc.), ethical values and market forces to appraise whether there is a point of convergence for these that can be beneficial for both seller and consumer concerns. This paper has considered different perspectives on the religious slaughter and provided an overview of competing understandings regarding the ~~above concepts. concept of "To what extent does stunning impact What constitutes halal slaughter?", "Who determines what is halal this slaughterconcept?" and "What are the dynamics variations and tensions between legal and religious understandings of halal slaughter?" and "What are the implications for industry".~~

Originality/value – This study although academic and philosophical in nature, ~~it~~ raises questions on route to suggesting future research directions. It provides real value in stimulating more research in the area of halal food production and contributes to the understanding of different slaughter requirements ~~for~~ religious slaughter and the meat industry. It further sheds light on not only the religious and secular legal frameworks on animal slaughter and welfare but also the variations in understanding between them and provides examples of attempts to bridge any gap. The paper highlights the importance of halal food based on religious values and its implications for wider society.

39 Keywords: halal; ~~integrity; market growth;~~ poultry; ~~reversible; slaughter; productivity;~~ stunning, [law,](#)
40 [industry practices](#)

41

42 **Introduction**

43 Halal is the Arabic term for lawful or permissible – and within the food context, halal refers to the
44 Islamic dietary standard (~~HMC, 2016~~[Regenstein et al. 2003](#)). Halal food products are a growing
45 demand among Muslims across the world. This demand is projected to ~~double in the next three~~
46 ~~decades~~[contribute up to 17.4% of the world food market in 2018 \(Lubis et al., 2016; Thomson](#)
47 [Reuters, 2015\)](#). The key drivers for this growth are understood to be population growth, an increase
48 in halal consciousness and disposable income ([Thomson Reuters, 2015](#)).

49 The term halal is popularly associated with meat and food products, but it should be noted that halal
50 is a way of life and driven by values based on the Qur'ān and Ḥadīth as well as post-Qur'ānic
51 literature. The more elaborative expressions of this way of life can be located in the tommes of *fiqh*
52 (Islamic legal thought). Therefore, halal encompasses a variety of sectors including pharmaceuticals,
53 cosmetics, clothing, financial services, logistics, hospitality (Muhammad, 2015) and tourism
54 (Henderson, 2015). The production trends of the halal food industry suggest that developed nations
55 with minority Muslim populations are the biggest producers of meat aimed for the halal markets; for
56 example: Australia (a beef producer), New Zealand (a lamb producer) and Brazil (a chicken producer)
57 (Norāzmi and Lim, 2015). [The Halal food market was born in industrial countries to supply halal food](#)
58 [to Muslim majority countries. In fact, the halal food trade was made possible by technological](#)
59 [progress and access to free trade. \(Bergeaud-Blackler, 2010\).The provision of products by industrial](#)
60 [countries for this market has now extended beyond halal food. \(Bergeaud-Blackler, 2010\).](#)

61

62 [Nevertheless, w](#)hilst these countries provide for the halal market, the halal nature of the meat
63 provided by them is not void of scholarly contestations (Muftī 'Uthmānī, 1997; Muftī 'Uthmānī, 2006)
64 ~~whilst meat products are strictly regulated in the halal food sector~~. The Islamic method of slaughter
65 is known as *al-Dhabh* (Shragge and Price, 2014), and carrions, blood, porcine and meat of dead
66 animals or those slaughtered without following the Islamic law are prohibited for consumption
67 (Qur'ān: 2:168, 2:172, 5:3, 5:90, 23:51). Policy makers, scientists and food industries would benefit
68 to understand, [in order to avoid such contestations](#), that the halal slaughtering process is rooted in
69 the primary scriptures of Islam and is extensively discussed within classical Islamic legal texts (Al-
70 Murghinānī, 1894) and modern day *fiqh* formulations (Al-Raḥmānī, 2006). Any compromise on these
71 requirements renders the animal inconsumable.

72

73 The basic principles of Islamic law on the issue are quite definitive: that the animal is not one that is
74 a prohibited animal to consume (e.g. lion, pig, shark, etc.) and the following rules are fulfilled during
75 the slaughter process: i.e. the requisite invocation is recited upon the animal about to be slaughtered,
76 the slaughterer is a Muslim [or a person of the Book \(as long as the latter believes in God, His Prophet](#)

77 [– Moses or Jesus – and their scriptures](#)) and the requirements of the process are fully met ([Mufti](#)
78 [Shaf'ī, 1968](#)). This is in accordance with the interdictions contained in the Qur'ān and related
79 sciences. This pronouncement is highly important in order to obtain permission from the Creator
80 before taking the life of another creature (Al-Qaradāwī, 1994). The slaughterer understands that the
81 act is not an act of aggression rather a need necessitates it, and that, it must be carried out, in the
82 name of the Creator (Allāh) (Farouk *et al.*, 2015). Further, the act must be carried out in a merciful
83 manner as per Islamic *fiqh* stipulations (Al-Qaradāwī, 1994).

84

85 The focus of the above discussion is all the more important in the 21st century due to the volume and
86 commercial value of the halal market and the halal process. In order to meet the market growth and
87 sustain productivity, the halal supply chain may need to increase productivity further whilst of course
88 maintaining the requirements of halal. In addition to this, there are also competing understandings
89 [between legal and Islamic stipulations](#) regarding animal welfare (e.g. -slaughter without stunning)
90 and concerns about animals being killed whilst receiving an overdose of stunning (e.g. electrical
91 stunning of poultry). Hence, the emerging questions are: Can science and technology be balanced
92 with religious jurisprudence? How can halal integrity (i.e. -animals being slaughtered according to the
93 halal method) be ensured and how can the global demand for halal meat be served? In summary,
94 how can the 'middle way' be maintained?

95

96 In this context at the heart of this paper are the following three themes:

- 97 1. [To what extent does stunning impact impact](#) ~~What constitutes~~ halal slaughter?
- 98 2. Who determines [what is halal slaughter](#) ~~this concept~~?
- 99 3. What are the [variations in dynamics](#) ~~of~~ religious and legal understandings of halal slaughter?

100

101 The paper undertakes a ~~literature a~~ review of [commercial poultry processing, followed by](#) -halal
102 slaughtering [and stunning](#) of poultry. ~~The three themes are explored including both non-stunned and~~
103 ~~pre-slaughter stunned practices~~ with a view to recommend halal slaughter based on the different
104 schools of legal thought. Likewise, this review will attempt to ensure integrity of religious slaughter
105 whilst addressing religious regulations and promoting halal business performance in the food supply
106 chain. This review does not intend to argue against any different school of legal thought or religious
107 belief, but the aim is to evaluate objectively the various positions that may enable or even determine
108 slaughter and consider the role of economics and market trends within this debate. The paper argues
109 that halal slaughter even in the current age should be non-exploitative, fulfil Islamic stipulations, and
110 be beneficial for both buyer and seller, irrespective of the growth in the halal food market. [In order to](#)
111 [achieve this, there is a need for constructive dialogue between proponents and supporters of non-](#)
112 [stunning methods. Farouk et al. \(2014\) summed up some key factors for consideration to understand](#)
113 [the 'scientific methods that have proven to harmonize the religious and spiritual requirements must](#)
114 [be adopted to improve animal welfare and to produce meat of both high spiritual and conventional](#)

115 qualities'. It is anticipated that t~~This review is expected will to contribute to a better understanding of~~
116 the above themes and to recommend further areas of study.

118 **Poultry processing**

119 This understanding is commenced by a study of poultry processing. Food scientists argue that large-
120 scale poultry processing plants are designed to process between 4,000 to 12,000 birds per hour on a
121 single line in order to meet consumer demand for non-religious poultry products (Raj, 2014; Schilling
122 *et al.*, 2014). The practice of stunning before slaughter is a statutory requirement in Europe for non-
123 religious products and applied to render animals unconscious. This, it is argued, is to ensure that the
124 animal experiences no anxiety, pain, suffering or distress prior to the slaughtering process (Velarde *et*
125 *al.*, 2014). The most common stunning method is electrical stunning (ES). It is relatively inexpensive
126 and undemanding to apply. This involves a large fibreglass bath with brine/water with an overhead
127 shackle line where birds are hung upside down and passed through the electrified water bath, whilst,
128 a current flows through the whole body towards the shackle that serves as the earth (Raj, 2014;
129 Schilling *et al.*, 2014). The birds then pass through the stunner in a continuous line and it can operate
130 up to 220 birds per minute in a high throughput production site (Raj, 2014). There is a difference
131 between Europe and the United States (US) regarding the strength of the current. An irreversible
132 stun (120-150 mA per bird; 50 – 400 Hz) is used in the EU and in this case the birds are stunned to
133 death (irreversible stunning) (EC 1099/2009; EFSA 2005; Schilling *et al.* 2014)

134
135 In the US birds are immobilized at low voltage ES (10-25 V) and high frequency (500 Hz) systems. In
136 low voltage ES, birds will regain consciousness if not bled within 2 minutes after stunning. Other
137 types of stunning include controlled atmosphere stunning (CAS) and low atmospheric pressure
138 stunning (LAPS). CAS involves changing the surrounding atmosphere by reducing oxygen, increasing
139 carbon dioxide, or a combination of both methods, or combination of oxygen with inert gases (e.g.
140 nitrogen or argon). The LAPS, reduces atmospheric pressure (e.g. 0.20-0.29 ATM) by evacuating air
141 from an airtight decompression chamber; this results in subsequent unconsciousness (Schilling *et al.*,
142 2014). The above mode of immobilisation (electrical stunning) is intensely contested for its halal
143 authenticity for the Muslim consumer market (EHDA, 2016; HAIP 2015; HMC, 2016; Muftī 'Uthmānī,
144 1997). Other reviews of opposing and supporting views and issues are highlighted by Fuseini *et al.*
145 (2016b), Regenstein (2012) and Zoethout (2013).

146
147 Further~~Nevertheless~~, alongside the stunning issue there is also another concern. From an animal
148 welfare point of view, commercial electrical water bath may cause unnecessary pain and suffering
149 otherwise caused by un-crating, shackling and pre-stunning electric shocks, inadequate stunning and
150 recovery of consciousness leading to live birds to be scalded. Hence killing of poultry using gases
151 whilst birds are transported within crates will, it is argued, eliminate the handling and stressing of live
152 birds prior to stunning. This method was, originally proposed by the Farm Animal Welfare Council in

153 the UK in 1982 (cited in Raj, 2014). It may be well in intention but challenges halal slaughter
154 fulfilment.

155

156 **To What Extent Does Stunning Impact Constitutes Halal Slaughter?**

157 The practice of stunning albeit underpinned by good intentions simultaneously raises concerns
158 regarding the fulfilment of the requirements of halal slaughter ([Nakyinsige et al., 2013](#)). One such is
159 that the animal is not alive at the time of slaughter and the flowing blood has not completely drained
160 out due to stunning. When poultry is stunned – although voltage and size of birds have been
161 standardised – it is argued that some birds arrive at the slaughter process dead due to the stunning
162 process (and different thresholds) or due to a delay in the time of reaching the slaughter process so
163 the blood cannot be drained ([Abū Ibrāhīm, cited in HMC 2016; Lever and Miele, 2012 HMC, 2016](#)).

164 ~~This totally compromises the halal definition.~~

165

166 ~~“Stunning the animal before slaughter leaves a huge doubt into the halalness of the animal
167 as many could be killed by the stunning especially in the case of poultry. Furthermore, it
168 prevents the drainage of [the] entire blood resulting in it being retained in the animal and
169 retained blood causes germs and bacteria, it deprives animals from the benefits of
170 tasmiyah due to it being unconscious, it is inhumane to animals and causes unnecessary
171 pain and suffering. It is in reality not done for animal rights purposes, but in order for the
172 industry to kill more animals quicker, so as to increase profits. According to the majority
173 of the ‘Ulamā stunning is not accepted in Islam and stunning could render the meat haram
174 in many cases” (Abū Ibrāhīm, cited in HMC 2016; Lever and Miele, 2012).~~

175

176 Likewise, the currents used in electric stunning will induce cardiac arrest. This is linked with higher
177 incidence of red wing tips in poultry ([Ali et al. 2007; McNeal et al., 2003](#)). ~~This is caused by
178 inadequate bleeding of the birds after cardiac arrest where the wings of killed instead of stunned
179 birds hang low resulting in stagnation of blood in the wing veins.~~ In order to prevent killing of birds
180 and reducing quality defects and ensuring all blood is drained out, an alternative to whole body ES, is
181 head only stunning where the stunning current only passes through the head of birds. Broilers (i.e.
182 chicken produced for their meat) however may become unconscious and insensible after head-only
183 ES with pin electrodes using a current of 190 ± 30 mA for 0.5 second ([Lambooi, 2014](#)). [Velarde et al.](#)
184 (2014) observed that 11% of poultry showed rhythmic breathing after stunning. ~~However~~ But, 15%
185 of the electrically stunned poultry showed rhythmic breathing at the moment of neck cutting and 5%
186 showed this reflex 30 seconds later. [Anastasov and Wotton](#) argue that it is unreliable to use an
187 absence of rhythmic breathing movement as a method to identify a loss of consciousness in birds
188 ([Anastasov and Wotton, 2012](#)). The high percentage of rhythmic breathing after electrical stunning
189 indicates that the settings of the stunning system or the interval between the end of current flow and
190 cut interval might have been sub-optimal. Hence, a set current of 250 mA is recommended for

191 practical implementation to overcome individual differences in resistance (Lambooj, 2014). ~~Lambooj~~
192 ~~(2014) has recommended the minimal current for electrical stunning of poultry (Table 1).~~The
193 Department of Islamic Development Malaysia (2011) has also provided specific guidelines for religious
194 pre-slaughter stunning of broiler. For example, broilers weighing between 2.40-2.70 kg should be
195 stunned using 2.50 – 10.50 voltage for 3.00-5.00 seconds.

196

197 ~~Insert Table 1 here~~

198

199 The Department of Islamic Development Malaysia (2011) support and argue that electrical water
200 bath stunning is the 'most common method used at a poultry processing plant'. It also provides a set
201 of stipulations for its lawful application. This is deemed as lawful and reversible, in its submission,
202 thereby not compromising halal slaughter requirements. ~~On the other hand, Pakistan does not favour~~
203 ~~stunning (Pakistan follows the Hanafī School of legal thought) whilst Malaysia adheres to the Shāfiīe~~
204 ~~School of legal thought and allows stunning (Lever and Miele, 2012). Pakistan has a huge animal~~
205 ~~resource base (Qureshi et al., 2012) is also one of the top halal meat producers to produce and~~
206 ~~export halal meat to United Arab Emirates (Farouk, 2013; ITC, 2015). Pakistan's method of slaughter~~
207 ~~also requires that the animals are laid on their left flank, preferably facing the Qibla (orientation~~
208 ~~towards Makkah, in modern day Saudi Arabia). This position (lying on the left flank) may also~~
209 ~~increase the likelihood of maximum draining of blood due to body pressure on the heart (Awan and~~
210 ~~Sohaib, 2016). The distinction between contemporary law regarding animal welfare and Islamic law~~
211 ~~does not apply to Islamic countries and Muslim majority countries. There is a conscious effort to~~
212 ~~ensure local halal standards are adhered to in such places. However, the interpretations may slightly~~
213 ~~vary on some issues albeit there is universal agreement on a set of benchmarks (see, Introduction).~~

214

215 However, ~~irrespective of the variance in the interpretations regarding the use of stunning~~ there is an
216 assumption in this generic approach to the use of a predetermined electric current. This entails that
217 whilst the weight parameter of every chicken may be set, will every chicken ~~necessarily~~ be able to
218 bear the same current and remain alive after the set voltage has been applied. Poultry are of
219 different strength even at a particular weight parameter and the capacity of each to bear the voltage
220 current varies irrespective of weight (HMC, 2016). ~~– This is why those who do not accept electric~~
221 ~~current stunning object. (HMC, 2016).~~The underlying question at the heart of the stunning debate is
222 to assess whether the conditions stipulated by Islamic law are being met or not by the intervention of
223 machinery. If so, then the animal would be halal otherwise not (Muftī Shaf'ī, 1968). Similarly,
224 legislative requirements for stunning before slaughtering vary from country to country. The
225 regulations of the United Kingdom are presented below as well as a generic overview of the European
226 Union.

227

228 **The Practice of Stunning in the United Kingdom**

229 The Welfare of Animals' (Slaughter or Killing) Regulations 1995 (Statutory Instrument [SI]) No.
230 1995/731 as amended by SI No.1999/400, permits slaughter of animals (cattle, sheep, goats,
231 turkeys, chickens, hens, guinea fowl, ducks, geese and quail). Schedule 5 Part II (which relates to
232 stunning and killing of animals) does not apply to any animal which is slaughtered in accordance to
233 Schedule 12 Part III (relates to slaughter by a religious method). It explains that slaughtering an
234 animal without stunning it, is allowed to meet Jewish and Muslim religious requirements using Jewish
235 and Islamic methods, respectively. In the case (the former is not the subject of this paper) of the
236 latter:

237

- 238 • By a licensed Muslim slaughterman;
- 239 • In a licensed abattoir or licensed poultry slaughterhouse which is under the official veterinary
240 supervision or other officially regulated poultry slaughterhouse (DEFRA, 2009)

241

242 Whilst legislation does allow religious slaughter without stunning, some academics raise potential
243 welfare concerns regarding animal pain sensations during neck-slit slaughter (Gibson *et al.*, 2009),
244 whilst others discuss fear and distress during new situations such as pre-slaughter handling (Duncan,
245 2004). There are equally concerns regarding the time taken to lose consciousness as a prolonged
246 period of time suggests an animal experiences longer pain following the cut (Gregory *et al.*, 2010)
247 and whether the animal experiences distress while bleeding out (Gregory, 2005). Likewise, concerns
248 regarding suffering have also been raised regarding aspiration or inhalation of blood in the respiratory
249 tract (Gregory *et al.*, 2009). [Interestingly, the practice of stunning in the UK was first authorised in](#)
250 [1928 by an Islamic scholar from the Woking mosque \(Slaughter of Animals Bill 1968\). As the Muslim](#)
251 [community grew in numbers post world war two, consequently the claims for public recognition of its](#)
252 [needs had a similar trajectory and the discussions around Halal food for example intensified. Legal](#)
253 [dispensations have allowed religious slaughtering as discussed above and that has been the preferred](#)
254 [option.](#)

255

256 In essence, in the U.K. the law determines what form of slaughter can take place. It is only legal
257 dispensations that give license to religious communities the freedom to apply religious understandings
258 to slaughtering animals. Equally, religious communities are required to remain within legal
259 boundaries. Whilst U.K. legislation allows minority religious communities special dispensations, this
260 has equally attracted contestations [from among](#) animal welfare practitioners. Conversely, minority
261 communities uphold their own concepts of animal welfare and contest [some](#) secular understandings
262 of the same. [Some scholars argue that modern animal welfare requirements are in harmony with](#)
263 [Islamic requirements \(Farouk et al., 2016\).](#) -These indifferent understandings, at times, gives rise to
264 tensions and misunderstandings. It further₇ highlights the challenges of maintaining a balance
265 between the secular and the religious within societies. This is, all the₇ more challenging for religious
266 communities in the European Union (E.U.).

267

268 **The Practice of Stunning in the European Union**

269 The Council Directive 93/119/EC of 22nd December 1993 relates to the protection of animals at the
270 time of slaughter or killing. It applies to the movement, lairing, restraint, stunning, killing, and
271 slaughtering of animals kept and bred for the production of meat, skin, fur or other products. It
272 advocates that animals shall be spared any avoidable excitement, pain or suffering during those
273 times. A competent authority is the central authority of a Member State [that is](#) competent to ensure
274 compliance with the requirements of this Regulation or any other authority to which that central
275 authority has delegated that competence. The religious authority in EU Member states where religious
276 slaughtering is practised should be competent in the application and monitoring of the special
277 provisions that apply to slaughter according to religious requirements. There should be an official
278 veterinarian and the slaughter must take place in a slaughterhouse. As regards the said provisions,
279 the authority shall operate under the official veterinarian designated by the central authority of the
280 EU Member States as defined in Article 2 of Directive 64/433/EEC (Directive 64/443/EEC; EC Directive
281 93/119; EC Directive 1099/2009). The directive further explains that stunning shall not apply to
282 animals subjected to particular methods of slaughter prescribed by religious rites, providing the
283 slaughter take place in a slaughterhouse ([EC Directive 93/119](#); EC No. 1099/2009). [There are](#)
284 [additional requirements under the Welfare of Animals at the Time of Killing \(England\) Regulation. For](#)
285 [example, bBirds must be killed in a rapid, uninterrupted movement using undamaged knives of](#)
286 [sufficient size and sharpness \(WATOK 2015a\).](#)

287 Nevertheless, slaughter without stunning is illegal in countries such as Iceland, Sweden, Denmark,
288 Norway and Switzerland, and outside of the EU, for example, in New Zealand (Anil and Gregory,
289 2014; Kern, 2011).

290

291 In essence, whilst E.U. legislation allows minority religious communities special dispensations to avoid
292 pre-slaughter stunning, some European countries deem it illegal. Consequently, there is
293 inconsistency in slaughter practice across the E.U. and this has given rise to discussions around
294 deconstructing the term halal in its dietary context where Muslims are living as a minority community,
295 and giving rise to different interpretations.

296

297 **Who Determines This Concept [of 'What is Halal' Slaughtering?](#)**

298 The concerns around how best to take the life of an animal for human consumption in a manner that
299 by law is seen as legal and humane, and as such constitutes animal welfare during slaughtering
300 under secular law, has challenged not only what constitutes halal but also who determines that.
301 This legal understanding is very much driven by the practice of stunning. The legal introduction of
302 stunning and other practices has attracted different interpretations for what constitutes halal and how
303 best the halal stipulations can be met even among Muslims. The diversity of the Muslim population
304 has attempted to address such concerns in different ways. [In the West, both day to day slaughter](#)

305 [and industrial slaughter need to take place at a licensed abattoir. This is not necessarily the case in](#)
306 [the Muslim world, where day-to-day slaughtering of a very small number of poultry may well happen](#)
307 [at a market place rather than an industrial abattoir. Nevertheless, industrial practices are scrutinised](#)
308 [Muftī Uthmānī, \(1418/\[1997\]\).](#)

309
310 The Muslim population is divided into two main groups, Sunnī and Shī'ite. The Sunni make up
311 approximately 85-90% and the Shī'a 10-15% of the global Muslim population (Lapidus, 2014; CIA,
312 2016). Within the Sunnī population, there are four major schools of legal thought or jurisprudence
313 (i.e. Ḥanafī, Shāf'ī, Mālikī and Ḥanbalī). Each of these legal schools of thought has varying degrees
314 of regional influence (Lever and Miele, 2012). According to Codex Alimentarius Commission (CAC/GL
315 24 – 1997), the halal term is subject to different interpretations by these different schools of thought.
316 They do not differ about what is haram and are united on the fundamentals of Islam.

317
318 It is important for those of the food industry interested in a share of the halal market and for food
319 policy makers to understand that ultimately Islam is a religion of unity and that halal and haram
320 originate from the Qur'ān and Ḥadīth. The differences between the four major schools of thought
321 revolve around technicalities but there is room for diversity and reasoned discussion. In essence the
322 Sunnī legal Schools agree on the aim of the slaughtering process, the place of slaughter (upper chest
323 and throat), and the minimum required standards but hold minor differences in opinion regarding the
324 complete fulfilment of the process of slaughtering. There are differences though in opinion between
325 the legal schools of thought. These are tantamount to different interpretations regarding what
326 constitutes halal practice and what compromises it (Wan-Hassan, 2007).

327
328 The Shī'a group is represented by three main branches (i.e. Ithnā 'Atharī, Ismā'īlī, and Zaidī) (CIA,
329 2016; van der Spiegel *et al.*, 2012). The Shī'ite law largely revolves around Ja'far al-Sādiq, the 6th
330 Imam of Shī'ism. Shī'ite legal understanding differs regarding the sources of law to Sunnī law
331 (Turner, 2011; Lapidus, 2014). Although there exists disagreement regarding some significant
332 theological matters there are also overlapping areas of understandings on a range of issues. Shī'ism
333 advocates a similar process to Sunnī Islam. It agrees on the place of slaughter and the technicalities
334 (Al-Sistani, n.d.).

335
336 Stunning is widely used in the meat and poultry industry but is an ongoing source of controversy and
337 there are differing opinions throughout the Muslim world, whilst there are strong objections to non-
338 stunned slaughter in parts of the western world. For example, in the Western world, Denmark bans
339 slaughter without stunning affecting both kosher and halal meat production (ITC, 2015). It is crucial
340 for scientists to understand the difference in opinion in order to appreciate the legal impact of state
341 policies on faith communities, e.g. as in Denmark for Jews and Muslims. In the Muslim world there is
342 acceptance of pre-slaughter stunning practices in certain countries such as Malaysia where stunning

343 of bovine animals is allowed (Shāf'ī school of thought) but unacceptable in Pakistan (Ḥanafī, school
344 of thought), and in areas of Europe, e.g. Russia or Poland (Lever and Miele, 2012).

345

346 The use of mechanical slaughter in halal abattoirs is also controversial and does not adhere to Islamic
347 requirements (Muftī Shaf'ī, 1388/1968; Nakyinsige *et al.*, 2013). The DIALREL project (2010)
348 evaluated the halal slaughter practices of poultry and visited abattoirs across Europe (Velarde *et al.*,
349 2014). It found similar differences in practice to the extent that some may be in conflict with halal
350 slaughtering per se. It also found that mechanical slaughtering is permitted in certain abattoirs in EU
351 (Velarde *et al.*, 2014). Velarde *et al.* (2014) reported that three out of the five poultry abattoirs that
352 practiced halal slaughter with stunning performed the neck cutting procedure with an automatic
353 horizontal rotary knife. This contradicts with halal requirements, where hand slaughter needs to
354 should be conducted by a Muslim slaughterman and accompanied with the invocation of blessing
355 prior to incision. Such practices raise concern regarding halal integrity, especially if such meat is to
356 be exported to the Muslim world or to other parts of the EU where Muslim communities are domiciled.
357 An absence of harmonised standards even across the Muslim world leaves ambiguity around 'Who
358 determines what is halal?'

359

360 Similar cases of difference in practice and standards as well as Islamic legal interpretation can be
361 seen in the UK where the Halal Food Authority (HFA) (Halal Food Authority, 2016a) certifies stunned
362 halal meat (HFA also certifies traditional ḥalāl slaughtering (slaughter without stunning) and hads a
363 separate certification scheme and logo launched in October 2016 (HFA 2016b)) while the halal
364 Monitoring Committee (HMC) (Halal Monitoring Committee, 2016) prohibits all methods of stunning,
365 and has maintained this position since its inception.

366

367 The variance in practice and understanding within the UK ensures that the ~~was-selected~~UK becomes
368 as a focal point of discussion, as it represents an example of a Muslim minority country and provides
369 an essential platform to analyse the challenges faced by both pre-stun and non-stun positions. Muslim
370 consumers in a Muslim minority country faces more challenges in meeting their halal diet due to
371 stricter regulations in terms of slaughter and potential risk of cross contact with non-halal or haram
372 (non-permissible) food (Masri, 2007 cited in Fuseini et al., 2016b; Thomas et al. 2017). On the other
373 hand, in most Muslim majority countries, abattoirs or meat processors do not have halal certification,
374 as all the food are assumed to be halal (Fuseini et al., 2016b). Halal food were unknown to Muslim
375 minority ~~majority~~ countries prior to globalization of the food trade (Bergeaud-Blackler 2010). This
376 creates better appreciation of the challenges faced by Muslim scholars, halal certification bodies and
377 consumers in the UK.

378

379 HFA has been in the UK since 1994 and was one of the first few halal certification bodies (HFA 2017;
380 Fuseini et al., 2017) and certified 75% of the UK's halal meat (Lever and Miele 2012), in particular

381 poultry in which the meats are slaughtered and electrically stunned in water baths (Higgin et al.,
382 2011). HMC, which only certifies non-stunned halal meat, had criticised HFA's method of halal
383 slaughter and stunning. The ~~Although~~ HFA continued to justifyied its-their method by arguing that
384 ~~stating due to~~ due to the increasing demand for halal meat, there is a need for the use of
385 mechanisation and stunning to render the animal immobilised. On the other hand, HMC believes that
386 the demand for non-stunned halal meat can be met with the aid of ~~from~~ Muslim scholars or trained
387 volunteers via a monitoring and assessment scheme (Lever and Miele 2012). 76% of Muslim
388 consumers (n=1000) responded in EBLEX (2010) survey that they would reject stunning before
389 slaughter and are more inclined to purchase meat from suppliers who sell only non-stunned meat or
390 from shops selling both sunned and non-stunned meat. Although the study represents a snapshot of
391 consumer purchasing and consumption of red meat profiles in England, it also demonstrates the
392 demand for non-stunned halal meat. The data strongly suggests the awareness for halal food among
393 the Muslim consumer and also alludes to lesser awareness among a small group. This is evident when
394 HFA recently launched a separate certification for the traditional halal (stun free) sector of the meat
395 industry (HFA 2016b) due to industry, current and potential consumers' interest. Consequently, this
396 will impact upon whether food integrity is held to be compromised or not. Food integrity here refers
397 to ensuring food products are halal. Both HFA and HMC are non-profit charity organisations (HFA
398 2017; HMC 2017) who are carrying out certifications to ensure the production and compliance of halal
399 food products that fulfil requirements from different groups of consumers.

400

401 -It is not the aim of this paper, as stated in the introduction, to discuss religious rules, rather it is to
402 form an understanding of Islamic dietary practices and to conceptualise the dynamics-variations of
403 legal and religious understandings of halal slaughter. The conventional cliché of supply and demand
404 and its dictates can broadly capture the productivity scenario but the preferred consumer criteria of
405 'halal' (possibly captured as consumer ethics) and its demand may well govern the market as
406 consumer awareness of market practices increases. The degree of acceptance of stunning, hand
407 slaughtering or mechanical slaughtering and recommendations for balance between valuing ethical
408 factors and fulfilling commercial interest is of particular significance for both buyer and seller of
409 poultry and meat. Such factors will also bear on the rate of productivity. Different groups of Muslims
410 champion a different halal criterion for ~~on~~ some ingredients as well as the slaughter method (van der
411 Spiegel *et al.*, 2012). The process of stunning is very much a grey area in both the legal secular and
412 Shar'iah law and its use is still widely controversial (ITC, 2015) and attracts strong debate on halal
413 integrity as well as animal welfare.

414

415 Dynamics-Variations inef **Religious and Legal Understandings onf** Halal Slaughter

416 The religious slaughter of animals is not a form of sacrificial practice. Rather it is concerned with
417 humane slaughter of God's creature (Shragge and Price, 2014). Table 2Figure 1 provides pointers on
418 how halal integrity is maintained without stunning.

419

420 Insert [Table 2-Figure 1](#) here

421

422 **Animal Welfare and Pre-slaughter Stunning**

423 According to the Universal Declaration of Animal Rights (UDAW), all animal life has the right to be
424 respected, and if it is necessary an animal can be slaughtered. This should be carried out

425 instantaneously, painlessly and in a way that results in no apprehension (Chapouthier and Nouët,

426 1998). In the current scenario of high demands for meat, religious slaughter at times finds itself in

427 conflict with the standard operating procedures (SOPs) of high-speed, high-throughput abattoirs.

428 There are also welfare concerns about religious slaughter without stunning – particularly regarding
429 pre-slaughter stress, pain of the incision and the duration of time between incision and

430 unconsciousness (Anil and Gregory, 2014) ~~to address these concerns stunning is used~~. The purpose

431 of stunning is to induce lack of consciousness and sensibility so the animal can be slaughtered and

432 bled without causing pain and distress (EC Directive 1099/2009; WATOK 2015b; EC Directive 93/119

433 1993; Gregory 1998).

434

435 ~~to render the animal unconscious so they can be slaughtered and bled without causing pain and~~

436 ~~distress (EC Directive 93/119 1993; Gregory, 1998). Despite the derogation from stunning, a number~~

437 ~~of Muslim authorities have accepted stunning as part of their halal slaughter procedure (MS 1500,~~

438 ~~2009; Indonesian Standard MUI HAS 23103, 2012; OIC 2009). In the UK, up to 84% poultry were~~

439 ~~stunned at 27 establishments in 2013 (FSA 2015; Fuseini et al., 2016a).~~ -Advocates of pre-slaughter

440 stunning maintain that stunning prior to slaughter is more humane than not stunning at all.

441 Advocates of religious slaughter methods that do not practice pre-slaughter stunning equally believe

442 that their method is humane (Anil and Gregory, 2014). In fact, the unanimous view in Islam is that

443 slaughter without stunning is valid and achieves the requirements. However, there are equally other

444 views within Islamic *fiqh* that stunning subject to certain conditions is acceptable.

445

446 The discussions regarding the validity of stunning can be summarised as follows. There are a number

447 of views whether stunning before slaughter is acceptable or not in Islam:

448

449 i. Acceptance with certain conditions (i.e. reversible stunning);

450 ii. Rejection on grounds that it is against religious rules, painful induction and causes
451 insufficient blood loss (as blood is considered *ḥarām*);

452 iii. Unsure or require assurances (Anil and Gregory, 2014).

453

454 The first view provides a level of acceptance in pre-slaughter stunning based on the interpretation

455 and application of sources of jurisprudence, namely ~~the~~ *Ijmā* (consensus of legal opinion) and *Qiyās*

456 (reasoning by analogy) to suit time, place and circumstances (Regenstein *et al.*, 2003). Hence, some

457 Muslim scholars have accepted non-lethal methods of stunning to meet legal requirements. Fuseini *et*
458 *a/.* (2017) reported the majority of Islamic scholars and consumers from a survey in the UK said that
459 reversible stunning is halal compliant. The adoption of stunning prior to slaughter must nevertheless
460 fulfil three pre-requisites:

461

- 462 i) The stunning equipment must only be handled by a trained Muslim slaughter man or
463 supervisor and is regularly monitored by a competent Islamic authority or halal certification
464 body (Department of Islamic Development Malaysia, 2011; MS1500: 2009).
- 465 ii) The stunning must not kill the animal nor cause permanent injury and is reversible.
- 466 iii) The stunning equipment used to stun pigs must never be used to stun animals for halal
467 slaughter (MS1500: 2004)

468

469 Figure 1-2 below summarises the above and represents the current transcending halal slaughter
470 practices that attempt to balance the [variations dynamics](#) of secular and religious needs for halal
471 meat.

472

473 Insert Figure 1-2 here

474

475 In summation, there are three positions on pre-slaughter stunning: non-religious slaughter, stunned
476 halal slaughter subject to conditions and non-stunned halal slaughter. It may be a difficult task to
477 address the concerns of all parties concerned. Whilst all parties agree that animal welfare is of
478 paramount importance there is a degree of difference on how best to achieve this in practice.
479 Interestingly, each view would label its position as the ethical position. The situation across different
480 countries is very different regarding whether non-stunned religious slaughter is lawful or not. Some
481 countries have accommodated freedom of religious choice whilst others have only allowed secular
482 legal choice for both religious and non-religious communities.

483

484 **Conclusion**

485 This paper has considered different perspectives on ~~the~~ religious slaughter and provided an overview
486 of competing understandings regarding the concept of "What constitutes halal slaughter?", 'Who
487 determines this concept?' and 'What are the dynamics and tensions between legal and religious
488 understandings of halal slaughter?' In practice, this equates to evaluating the application of no
489 stunning at all upon an animal (unanimous acceptance) versus the application of reversible stunning
490 upon an animal (contested). There are numerous studies that have focused on pre-slaughter
491 stunning, slaughter without stunning and measurement of pain stimuli and nociception. These
492 studies contribute to the understanding of different slaughter requirements in religious slaughter and
493 the meat industry. Stunning, however, remains a controversial and grey area in religious slaughter.
494 Malaysia as a leading and global halal research hub has further categorised stunning according to

495 weight categories to deliver appropriate stunning whilst ensuring the animal remains alive but
496 unconscious prior to slaughter. [This represents an attempt by Malaysia to close the gap between](#)
497 [religious and secular legal frameworks and stipulations.](#) There are equally other issues to contend
498 with: the consumers' increasing demand for halal meat, different requirements from different schools
499 of thought and fulfilling halal integrity principles; it is indeed a challenging task but not unachievable.
500 [It is acknowledged that religious slaughter is slower, requires more skill and attention to animal](#)
501 [handling and the extra requirements of halal preparation place additional burdens on food processors](#)
502 [especially small and medium producers \(Regenstein, 2012; 2017; Thomas et al. 2017\). Works by](#)
503 [Grandin \(http://www.grandin.com/\) and the collaboration between religious groups and the World](#)
504 [Health Organization for Animals \(OIE\) and DIALREL in Europe can help to address the challenges](#)
505 [\(Grandin, n.d.; Regenstein, 2017\).](#) In a practical sense, consumers who demand non-stunned halal
506 meat or prefer stunned halal meat could have freedom of religious choice to meet their dietary
507 requirements [notwithstanding the cost implicaitons](#). No doubt, there are differences in opinion
508 regarding the use of stunning but a key question for future research is 'How did we get to where we
509 are now?' ~~Given that, in essence Islam emphasises non-stunning h~~How did the stunning debate
510 originate and even impact market practices? ~~-Stunning is not mentioned in the Qur'an nor in the~~
511 [body of Hadith literature. as-It is a relatively new method. But the requirements and principles of](#)
512 [halal slaughtering are provided in the primary sources of Islam. -This hHas this led to the issue of](#)
513 [stunning being discussed in ølegal formulations -or edicts or Fatwas \(Islamic rulings\) regarding ø](#)
514 [whether the technology is acceptable as halal or not? \(Fuseini et al., 2016\). The underlying question](#)
515 [at the heart of the stunning debate is to assess whether the conditions and broad aims stipulated by](#)
516 [Islamic law are being met or not by the intervention of machinery \(Mufti Shaf'i, 1968\). This suggests](#)
517 [that Muslims scholars have been engaging with the outcomes of scientific research and its](#)
518 [methodologies. At times the outcomes have been embraced and at other times not at that point of](#)
519 [development. -The current researchers also propose that the history of stunning to be further](#)
520 [evaluated.](#)

521
522 Obviously, the increase in demand for halal meat (whether stunned or non-stunned) will [require](#)
523 [spurred](#) production and supply. But will religious slaughter (i.e. without stunning and hand
524 slaughter) practices be able to cope with the increase in demand? This raises another key research
525 question, 'Will consumers be willing to pay the premium for non-stunned halal meat?' There are
526 other interesting research questions that stem from this paper e.g. 'What constitutes animal welfare
527 in conventional and religious slaughter and who determines this concept?' Nevertheless, there
528 remains more unanswered questions than solutions but ultimately, it is important to understand that
529 halal is a way of life and embraces good conduct and integrity or ethics in Islamic dietary practices
530 [too](#). So, with the ever-changing world of science and technology versus consumerism and population
531 increases as well as migration cycles that bring different communities with ethical dietary demands
532 together, the intriguing question remains how will the relationship between technology and religious

533 ethics take shape? Further, how will migration cycles impact upon religious interpretation?
534 Transnational migration and globalisation are important processes in the diffusion of dietary and
535 cultural patterns. Since the 1970s, the migration of large Muslim communities into the EU had led to
536 some EU countries to take their dietary needs and religious slaughter into account within their
537 national laws (Adams, 2011; Adamson, 2006). -Finally, how will the existence of a growing halal
538 market with huge commercial value ~~to~~ be negotiated and impact upon the practices of supplier
539 chains? Ultimately, the absorption of migrant religious communities and how their growth and needs
540 are addressed by host communities through the vehicle of state policies as part of a liberal
541 democracy, may well determine the outcome. Likewise how entrepreneurs seize huge commercial
542 opportunities and provide bespoke products may also determine the outcome. The future may not
543 simply be captured by the cliché 'supply and demand' rather it may well be 'supply tailored for ~~the~~
544 demand'!

545

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