

## Chapter 3

### RESULTS

During the period afforded to complete the study, a total of 123 cases of contact gunshot wounds were identified at the Medico-Legal Laboratory in Pretoria. Of these cases, the vast majority was being investigated as suicidal events ( $n = 114$ ), with only 8 cases being of definite homicidal nature. One case was considered to be an accidental firearm death.

Cases in which gunshot wounds could not be positively identified as being within contact range were not included in the research. Also excluded were weapons found in a pool of blood, and weapons returned to family members or institutions after the fact.

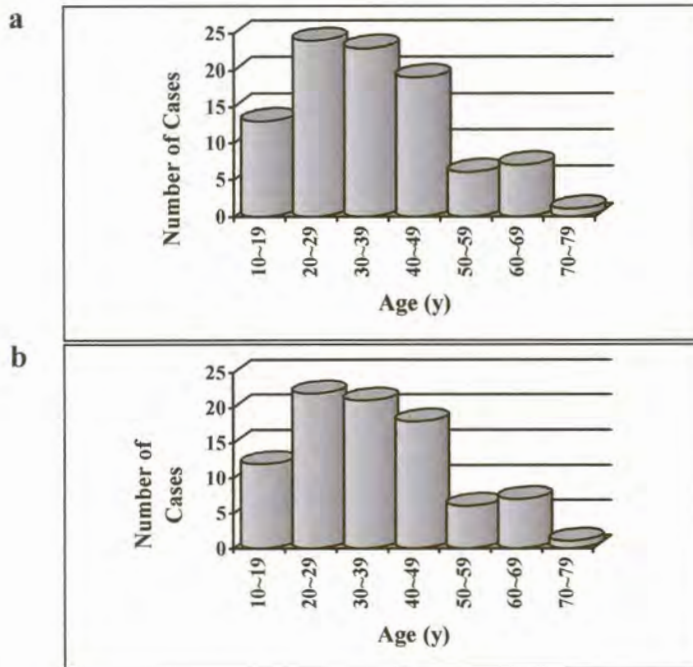
#### Age, Sex, and Race

In 23 cases of strongly suspected suicide the ages of the victims were unknown, in three cases the victims were simply described as being “adult”, and in one case the victim was characterise as being an “adolescent”. The mean age of the remainder of victims strongly suspected of having committed suicide ( $n = 87$ ) is 36,1 years (range: 15 to 77 years).

The mean age of the homicidal gunshot victims ( $n = 5$ ) was calculated to be 30,8 years of age, and ranged from 17 to 43 years. In three of the homicidal firearm deaths, the ages were unknown.

The victim of the known accidental shooting was 26 years of age.

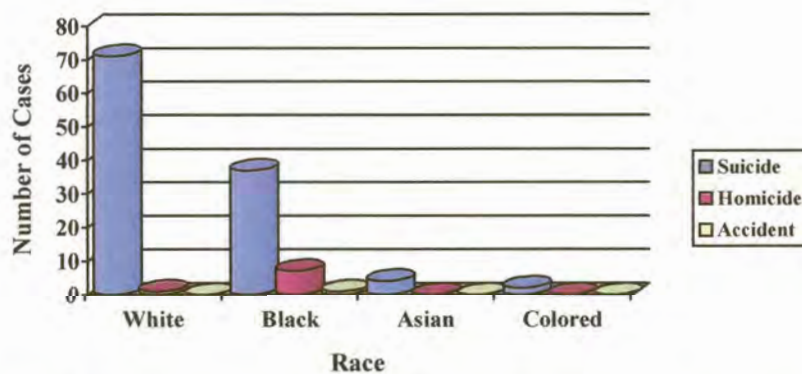
The precise age distribution of *all* the victims can be seen in *Figure 3.1*.



*Figure 3.1: a) Age distribution by 10-year age group (n = 93), and b) similar distribution in suicidal gunshot deaths (n = 87).*

The ratio of male to female victims was approximately 4:1 – 98 male (79,7 %) and 25 female (20,3 %) victims. The suspected suicidal cases (n = 114) were comprised of 92 (80,7 %) males and 22 (19,3 %) females.

The majority of the victims were white, constituting 72 (58,5 %) of the 123 cases. The remainder of the victims was black (36,6 %), Asian (3,3 %), and Coloured (1,6 %). *Figure 3.2* reveals the distribution of race according to suspected manner of death.



*Figure 3.2: Distribution of race according to suspected manner of death.*

### Anatomical Location of Entrance Wounds

The anatomical location of each entrance wound was recorded. The preferred site of entry was found to be the head in 89,2 % of cases, the chest in 6,7 %, the neck in 2,5 %, and the abdomen in 1,6 % of *all cases*. Not included in the data are the three cases in which multiple contact gunshot entries were found. These cases had strong indication of suicide. In *Table 3.1* summarises the precise sites of entry in the single gunshot cases.

*Table 3.1: Anatomical locations of entrance wounds.*

SITE OF ENTRY	FREQUENCY	% (n = 120)
<b>Head</b>		
- Right temporal	55	45,8
- Mouth	23	19,2
- Frontal Area	14	11,7
- Left temporal	5	4,2
- Inferior jaw	4	3,3
- Other	6	5
<b>Chest</b>	8	6,7
<b>Neck</b>		
- Anterior aspect	1	0,8
- Right lateral	1	0,8
- Posterior aspect	1	0,8
<b>Abdomen</b>	2	1,7

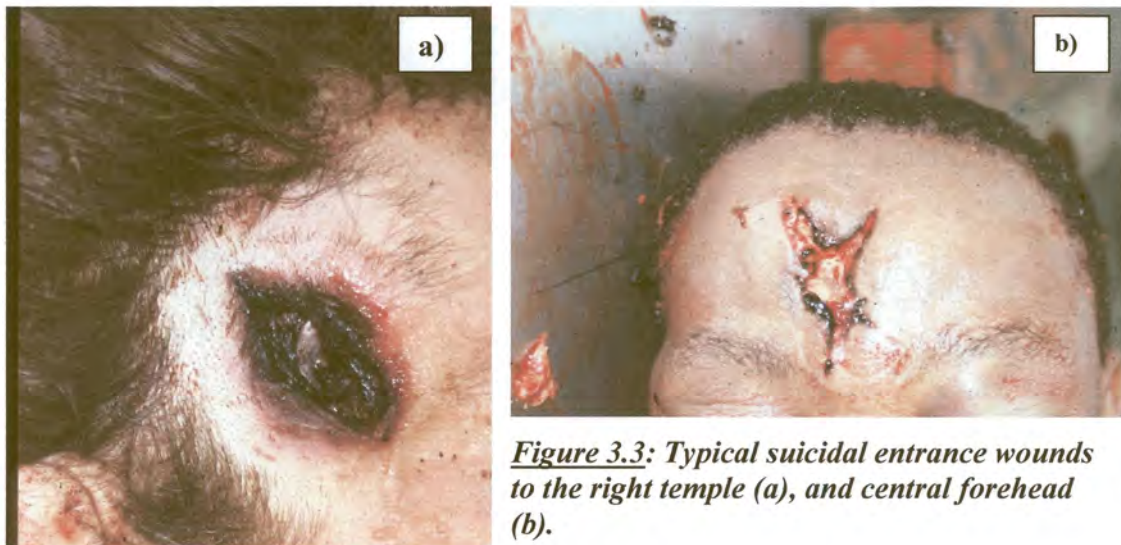
The three cases involving multiple contact gunshot wounds were all highly suggestive of suicidal events. All three cases involved the inferior aspect of the jaw as the primary site of entry, followed by entries in the right temporal region, the chest, and the right temporo-parietal region. It appeared as though the primary shot under the chin did



not cause immediate incapacitation and that the victims could therefore manage the discharge of secondary shots.

The preferred sites of entry in cases known to be homicide were the precordium (n = 2) and left temporal region of the head (n = 2).

*Figure 3.3* exhibits two gunshot entrance wounds to two of the most popular anatomical sites: The right temple and the central forehead. Note the black soot deposition around the edges of both wounds, as well as the stellate-shaped wound on the central forehead (*b*). These features are both indicative of contact range gunshot discharges.



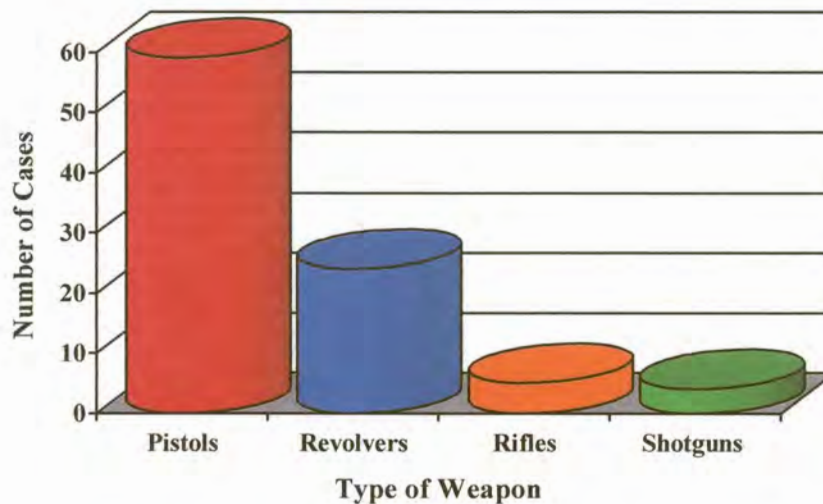
*Figure 3.3: Typical suicidal entrance wounds to the right temple (a), and central forehead (b).*

### Weapons

Although 123 cases of contact gunshot wounds were reported during the course of the study, the type and calibre of only 92 firearms were identified. These weapons include:

- Pistols – 59 (64,1 %)
- Revolvers – 24 (26,1 %)
- Rifles – 5 (5,4 %)
- Shotguns – 4 (4,4 %)

The 9mm calibre pistol was the firearm of choice, followed by .38 Special revolvers, with 43 (46,7 %) and 17 (18,4 %) reported cases, respectively. Other firearms employed in suicidal acts include .32 calibre pistols, shotguns, rimfire ammunition weapons, etc. In *Figure 3.4* and *Table 3.2* the weapons used are summarised.



*Figure 3.4: Number of suicides by type of weapon used.*

*Table 3.2: Type and calibre of weapons used in contact gunshot events.*

WEAPON & CALIBER	NUMBER OF CASES	% (n = 92)
<b>Pistols</b>		
- 9 mm	43	46,7
- .32 (7.65 mm)	7	7,6
- .25 (6.35 mm)	2	2,2
- .22	2	2,2

- .357 Magnum*	2	2,2
- .38	1	1,1
- .45	1	1,1
- 7.62	1	1,1
<b>Revolvers</b>		
- .38 Special	17	18,4
- .357 Magnum	4	4,3
- .22	2	2,2
- .32	1	1,1
<b>Shotguns</b>	4	4,3
<b>Rifles</b>		
- 7,62 mm	1	1,1
- .303	2	2,2
- .243	1	1,1
- .22	1	1,1

\*Continue

Some uncommon firearms were encountered during the study. A .22 calibre target pistol (*Figure 3.5*), as well as a 7.62 calibre pistol (a calibre usually found in military rifles), formed part of the recovered firearms.



*Figure 3.5: The .22 calibre target pistol.*



### Suicide Notes

In 45 cases of possible suicide no information regarding a farewell letter could be obtained, either from incomplete docket entries or from an inability to come into contact with the relevant investigating officers. In the remaining 69 cases of strongly suspected suicide, information had been obtained and it was found that in only 13 (18,8 %) cases a suicide note was indeed left behind by the deceased. This is not surprising, as it corresponds with data from previous studies.<sup>18, 34, 40</sup>

### Location of the Body

The location of the body was unknown in 48 of the cases. In the remaining 75 cases, the preferred site for a contact shooting to occur (suicidal or homicidal) was the decedent's home, and more precisely, the victim's bedroom, where 34 (45,3 %) cases of contact gunshot wounds occurred (*Table 3.3*).

These numbers correlate well with previous studies.<sup>18, 34</sup> Alternative, unexpected locations were encountered as preferred sites of suicide. A bar, church, zoo, and a shooting range were some of the unusual locations of these deaths (*Table 3.3*).

*Table 3.3: Locations of suicidal gunshot events.*

LOCATION	NUMBER OF CASES	% ( n = 75)
<b>Indoors</b>		
- Bedroom	34	45,3
- Lounge	6	8
- One room shack	3	4
- Other	4	5,3
<b>Outdoors</b>		
- Garden	6	8

- Roadside*	5	6,7
- Just outside a building	3	4
- Field	2	2,7
- Park	1	1,3
- Cemetery	1	1,3
<b>Public Areas</b>		
- Shooting range	1	1,3
- Zoo	1	1,3
- Nature Reserve	1	1,3
- Public restroom	1	1,3
- Church	1	1,3
- Bar	1	1,3
<b>Other</b>		
- Motor vehicle	3	4
- “Wendy House”	1	1,3

\*Continue

The single accidental gunshot event occurred as the deceased was sitting at his security guard post directly outside a building.

The other suicides that occurred directly outside buildings include a homicide-suicide that transpired outside a one-room shack, and a suicide just outside an unknown house in the process of being built.

Locations of other homicide-suicides include a “Wendy house” and a one-room shack.

### **Blood on and in Firearms**

Perhaps the most disturbing of all results is the extremely low quantity of weapons obtained for analysis. Of the 123 cases that formed the study population, *only 30 weapons* were transferred to the Biology Unit at the Forensic Science Laboratory in

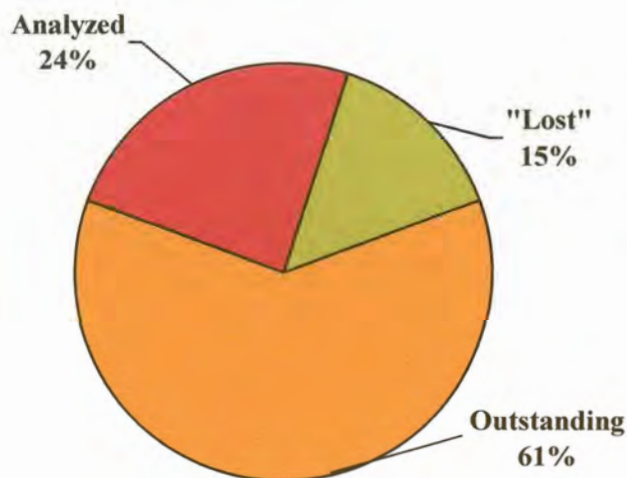


Pretoria. This means that *only approximately 24 percent of all weapons discovered on scenes of shootings in South Africa were made available for analysis of biological matter on the weapons during the course of the study.*

Another disquieting discovery made during the study was the number of firearms immediately “lost”, thereby being unavailable for analyses – either ballistic or biological. In 18 cases (15 %) the weapons were immediately unavailable for scientific examination. In two of these cases the shooting was considered to be homicide and the weapon was not present at the scene of the crime. In another three cases, the shooting was considered to be of suicidal nature, but the weapon was “thought to be stolen from the scene” prior to police arrival.

Approximately 10 firearms were returned to the victims’ family immediately after investigating the crime scene, two firearms were service weapons belonging to police officers who committed suicide and were returned to the relevant police station immediately without entering it for analysis. In another case, it was discovered during an interview that the officer in charge of that specific suicidal shooting, cleaned the weapon himself prior to entering it into SAP13.

Of the 123 cases, approximately 75 weapons are still outstanding for biological analysis. *Figure 3.6* displays the number of weapons analysed, “lost” for analysis, and still outstanding.



*Figure 3.6:  
Number of  
weapons  
analysed,  
“lost” for  
analysis, and  
still  
outstanding.*

The external aspects of the available weapons were carefully inspected for the presence of back spatter. Of the 30 weapons inspected, only 12 firearms (40%) were found to contain blood on the exterior aspects. These figures do *not* correspond with those from experiments performed by Stone<sup>10, 11</sup>. In *Figure 3.7* a 9mm pistol can be seen with blood on the external surface.

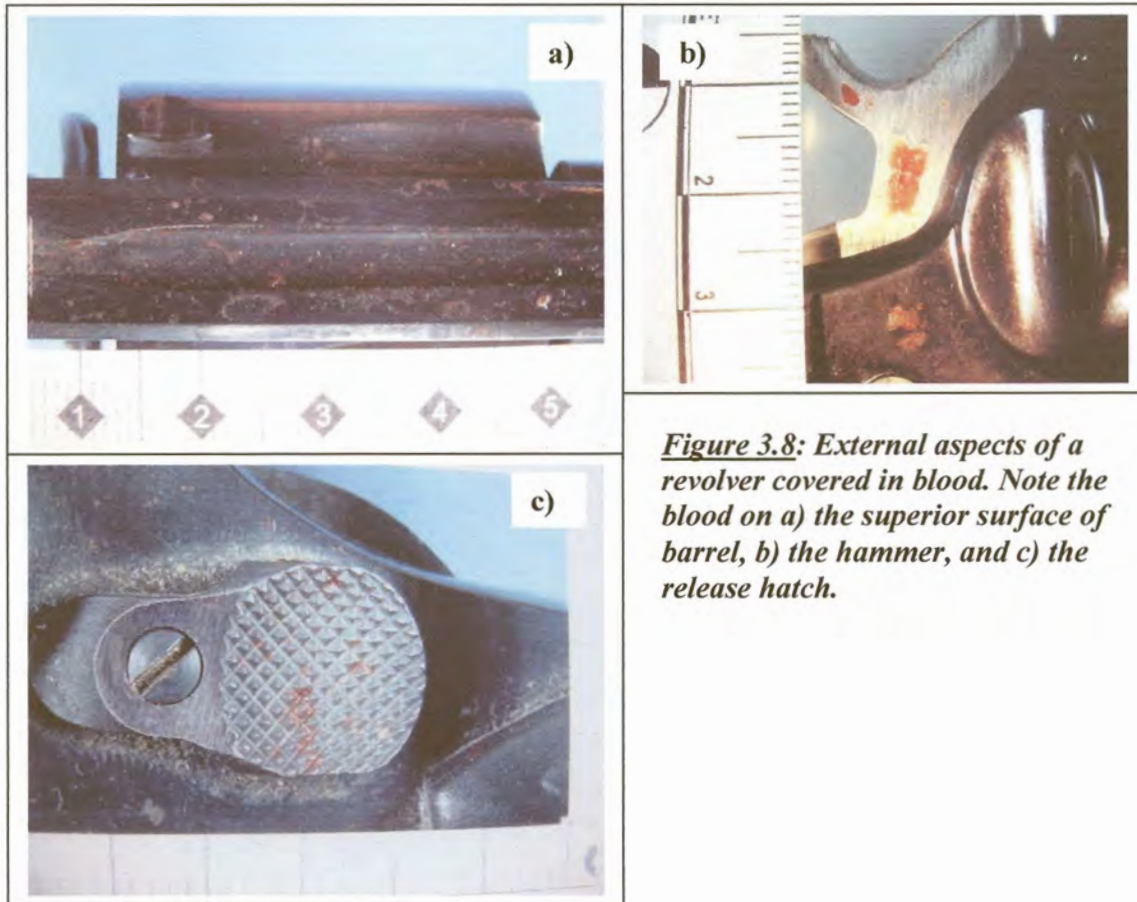


*Figure 3.7: A weapon showing macroscopic back spatter on the outside (above). Note the close-up of the blood-containing area (left).*

In the majority of instances where firearms were analysed for blood on the external surfaces, it was the superior aspects of the guns that were covered with the greatest amount of blood. This equates well with previous studies<sup>33</sup>, as the inferior part of



the weapon, especially the handle, is usually shielded by the shooter's hand. Other weapons with blood on the external superior surface are exhibited in *Figure 3.8*.



*Figure 3.8: External aspects of a revolver covered in blood. Note the blood on a) the superior surface of barrel, b) the hammer, and c) the release hatch.*

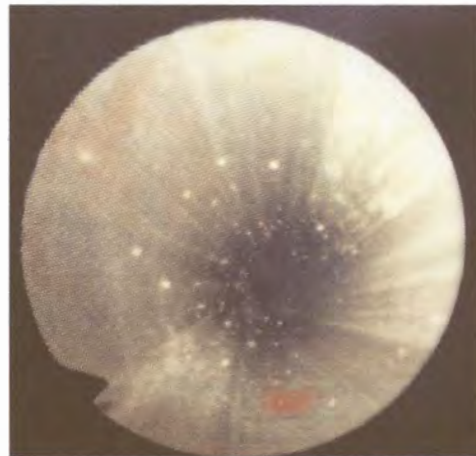
Subsequent to examination of the exterior surface of the weapons, the inside of the barrels was investigated by utilising a baroscope. This instrument allowed for the magnified probing of the very inside of the barrels and the presence of any foreign biological material could be visualised. The appearance of the inside of a barrel can be seen in *Figure 3.9*.

Twenty-one (70%) of the available firearms tested positive for blood droplets inside the barrels. In *Figure 3.10* the blood droplets can be seen on the interior surface of one of the barrels.





***Figure 3.9:*** A photograph showing the interior surface of a barrel.



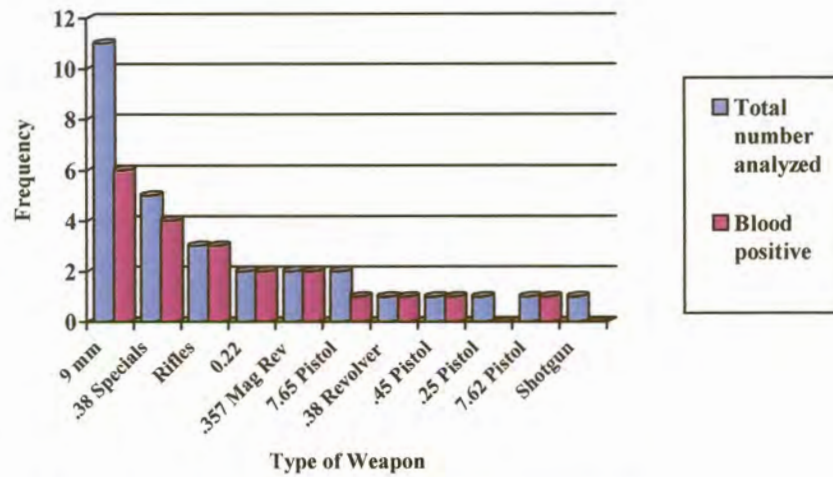
***Figure 3.10:*** Note the presence of blood droplets.

Positive tests for blood were obtained by employing the chemical, benzidine. The treatment of the inside of the barrels with this chemical revealed that 21 firearms (70 %) yielded positive results for the presence of blood in the barrels. **Table 3.4** gives a summary of the type and calibre of weapons with the number of positive and negative tests for blood.

**Table 3.4: Results of weapon analysis for the presence of blood on the outside and inside of barrels.**

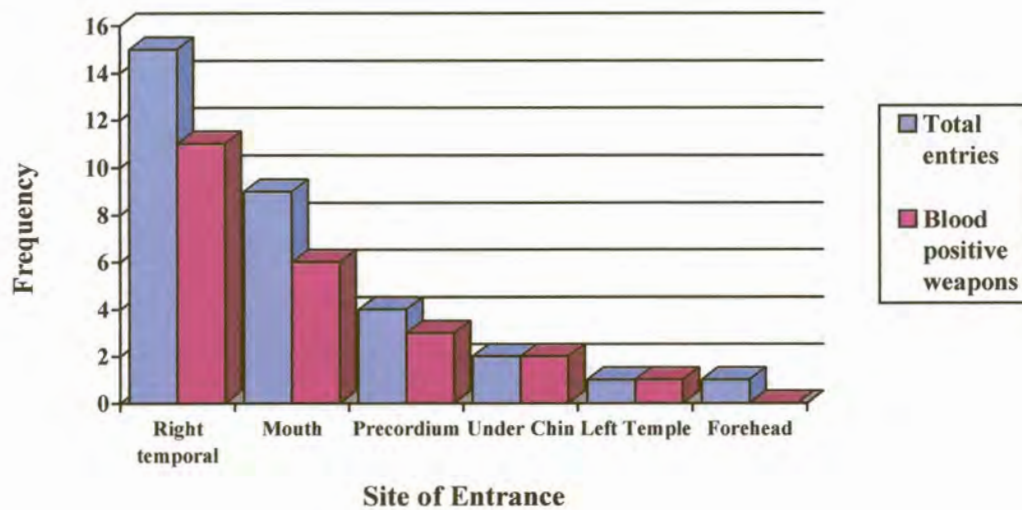
<b>WEAPON</b>	<b>BLOOD VISIBLE OUTSIDE</b>	<b>BLOOD VISIBLE INSIDE (Baroscope)</b>	<b>POSITIVE BENZIDINE TEST INSIDE</b>
9 mm Pistols (n = 11)	3	6	6
.38 Special Revolver (n = 5)	2	4	4
.38 Revolver (n = 1)	1	1	1
.45 Pistol (n = 1)	1	1	1
.357 Mag Revolver (n = 2)	2	2	2
7.65 mm Pistols (n = 2)	0	1	1
.25 Pistol (n = 1)	0	0	0
.22 Revolver (n = 1)	0	1	1
.22 Target Pistol (n = 1)	0	1	1
7.62 Pistol (n = 1)	0	1	1
Shotgun (n = 1)	0	0	0
Rifles (n = 3)	3	3	3
<b>TOTAL</b>	<b>12 (40 %)</b>	<b>21 (70%)</b>	<b>21 (70%)</b>

*Figure 3.11* provides a summary of the number of blood positive weapons.



**Figure 3.11: Summary of blood positive weapons.**

Of the cases where the weapon was made available for analysis, the anatomical site of entry was examined and – as can be seen in *Figure 3.12* – firearms used to create entrance gunshot wounds in the right temporal area retained a higher percentage of blood than those employed to create alternative entries.



**Figure 3.12: A graph correlating an entry wound with the number of blood positive weapons.**



Two of the firearms that tested positive for the presence of blood inside the barrels were employed in multiple gunshot suicides. Both consist of double entry wounds. One of these cases had gunshot wounds to the inferior aspect of the jaw and to the right temporal area, while the other had wounds to the precordium, as well as the inferior aspect of the jaw. In the latter case, no blood could be detected on the external surface of the weapon (9mm pistol), while in the former blood was detected on the outside of the gun (.22 rifle).

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